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RECENT ADVANCES IN THE PHYSIOLOGY OF VISION—PART II*

BY

H. HARTRIDGE, M.D., Sc.D., F.R.S.

Professor of Physiology, St. Bartholomew's Hospital Medical College

When Young's three-colour theory was first put forward by its celebrated proposer it dealt adequately with all the facts of colour vision which were known at that time. It stated that all colours, including white, can be matched by suitable mixtures of three spectral primary colours—red, green, and blue. As methods of investigation improved and the scope of the inquiry widened, deficiencies in the theory began to disclose themselves. Thus Sir John Parsons (1924a) wrote: "Difficulty is experienced when an attempt is made to explain the phenomenon of peripheral vision, or of induction, by the theory." Recognition of this difficulty did not cause the abandonment of the theory, because it still had much to recommend it; it was easily understood; it provided a useful classification of the various types of colour-blindness; it offered a feasible explanation of many visual phenomena, and it was an incentive to further research. By degrees, however, its position has deteriorated with the acquisition of further knowledge, in which connexion special reference should be made to Granit's work (1943, 1945), in which he applied the micro-electrode technique to the retinae of many mammals. He did not find that there were three types of colour receptor, as would have been expected on the basis of Young's theory—namely, red, green, and blue—but as many as seven in the frog and four in the cat. These researches, which I reviewed last year (Hartridge, 1946a), were a serious setback to Young's theory, which had held the field for more than a century.

Section I: Retinal Micro-stimulation

When Granit's researches on animals were published I began to look for a method which would be applicable to an intact man. In the case of an animal the cornea, lens, and vitreous may be removed, and the electrode placed direct on the individual fibres of the optic nerve as they pass across the surface of the retina to leave the eyeball at the optic papilla. In the case of man, except under unusual conditions—where the eyeball has been seriously injured as the result of an accident, or where it is to be removed for medical reasons—Granit's method cannot be applied, and therefore a different principle has to be used. The plan I finally adopted (Hartridge, 1947) was to apply to chosen parts of the retina pencils of white or coloured light which were so narrow that they stimulated small groups of receptors, or even, under good conditions, single receptors. These tenuous beams of light were produced by a lens system of special design which resembled a microscope used the reverse way round. Whereas the latter magnifies, the micro-stimulator lens system diminishes the images of small sources of white, or of monochromatic, lights until they become mere pin-points. Their geometrical images subtend at the eye an angle of 8 seconds of arc, and they form on the retina geometrical images whose diameters are equal to one-fifth of a cone unit. Before using the instrument care was taken to correct as perfectly as possible defects present in the lens system of the observer's eyes. As a rule only one eye was used at a time. This instrument gave satisfactory results and was employed for studying a number of different problems. Three concern us here: (*a*) to determine whether there is a constant fixation-point in the fovea for light of any given colour and brightness, or whether different fixation-points are used at different times; (*b*) to determine whether lights of different colour use the same or different fixation-points; and (*c*) to ascertain which colours, if any, are to be seen when a tiny ray of white light is caused to explore the surface of the retina.

(*a*) The position of the fixation-point for green rays (5,200 A.U.), was determined in relation to a small scotoma for red rays which existed near the fovea, in my left eye (Hartridge, 1946b). The precise position of the fixation-point was measured a number of times, on three different evenings, and was found to alter hardly at all in position. The greatest difference between the three mean values was found to be less than one-quarter cone unit.

(*b*) When rays of other colours were similarly tested it was found that each colour had a definite fixation-point of its own. In all, seven different points were located—namely, for red, orange, yellow, green, blue-green, greenish blue, and blue. The red and the orange fixation-points were to the left and below the green ones; the yellow, the green, and the blue-green points were all close to one another; while the greenish blue and the blue points were to the right and below the green ones in the visual field. These positions were confirmed by another method, so far as red, green, and blue were concerned, which involved the estimation of eye movements required in order to fix, in turn, first one of these coloured points, and then another.

(*c*) With regard to the third type of experiment, it was found that a beam of white light remained white in appearance, wherever it was situated on the retina, unless there was also present a conditioning coloured light in the visual field. When this was the case colour changes were found to occur. Thus when the conditioning coloured light was red the white light looked white in certain positions but red and orange in others. Examined in this way the white light was seen on different occasions to have the following subjective colours: red, orange, green, blue-green, greenish blue, or blue. Yellow was also seen under advantageous conditions; making seven colours in all.

Thus by means of two different methods—the fixation method and the subjective colour method—evidence was found for the presence in the human fovea of several different kinds of receptor. Now, such methods may give fallacious results unless great caution is exercised by the observer in their performance and interpretation. In consequence it would have been unwise to place reliance on them unless they had been confirmed by the other methods, which are described in the following sections.

Section II: Colour Mixture Experiments

With the apparatus available to Thomas Young and his contemporaries it seemed possible to match exactly the monochromatic yellow light of the spectrum by a suit-

* The first part was published in the *British Medical Journal*, April 27, 1946, p. 637.

able mixture of spectral red and spectral green lights. As spectroscopic apparatus improved, so as to produce purer spectra and to permit more exact comparisons to be made, it was found that a precise match was not obtained, because the monochromatic yellow was always more saturated—that is, contained less white light—than the yellow produced by mixing red and green. Thus for equality to be obtained either white or, better, blue light was mixed with the pure yellow. In the case of the blue-green colours it was red light which was added for the same purpose. In the case of the red or the violet, near the ends of the spectrum, it was green light which was required. Now, adding a colour to one side of a match is equivalent to subtracting it from the opposite side. The colour equations therefore took this form:

(*a*) Extreme red = red + blue − green
(*b*) Yellow = red + green − blue
(*c*) Blue-green = green + blue − red
(*d*) Extreme violet = red + blue − green

These negative amounts of red, green, and blue were accounted for in various ways. Thus Wright (1946a) states: "All it means is that no physical radiation is capable of stimulating one of the receptor systems without causing activity in the other systems." This may be restated: "A red light stimulates the red receptors, but also to some extent the green ones and the blue ones, and similarly for lights of other colours." Göthlin (1943) held a different opinion, and thought that cerebral inhibition accounted for these negative values. At present there is no confirmatory evidence for either of these views.

Whatever the cause of the negative values may be there is no doubt that subtracting a given colour is equivalent to the addition of its complementary. Thus the subtraction of red is equivalent to the addition of blue-green, the subtraction of blue equals the addition of yellow, and the subtraction of green equals the addition of both extreme red and extreme violet.

The four equations given above therefore become:

(*a*) Extreme red = red + blue + extreme red + extreme violet
(*b*) Yellow = red + green + yellow
(*c*) Blue-green = green + blue + blue-green
(*d*) Extreme violet = red + blue + extreme red + extreme violet

On the left-hand side are all the colours of the spectrum, of which red, yellow, blue-green, and violet have been taken as examples. On the right-hand side are the spectral components required to match them. The latter comprise the following colours: extreme red, red, yellow, green, blue-green, blue, and extreme violet; seven colours in all.

Section III: Colour-blindness

It used to be thought that there were four kinds of defective colour-vision—red-blindness, green-blindness, blue-blindness, and total colour-blindness—and that the first three were due to the failure of one type of receptor, while the last was caused by a complete breakdown of all three types.

Such a classification fitted in with the three-colour theory and lent it very strong support. Soon, as the result of research, further varieties of colour deficiency came to light. In addition to the red-blind (protanopic) there were also the red-deficient (protanomalous); in addition to the green-blind (deuteranopic) there were the green-deficient (deuteranomalous), and so on. Then it was found that there were various grades of failure of vision for the red rays: in some cases it was the red near the end of the spectrum only that was involved; in other cases it was the whole of the red; in still other cases the red and the orange were affected together, and so on. In order to account adequately for all these different grades the red sensation had to be supposed to consist of several separate parts, each one of which could become deficient by itself or in conjunction with other parts. In the case of green-blindness also, changes of mechanism had to be introduced, and the original idea of a partial or a complete deficiency had to be replaced by a different plan altogether proposed by Pitt (1944)—namely, a partial, or a complete, linking of the red receptors with the green ones. So with blue-blindness it is no longer regarded as a defect of the blue receptors, as was once the case, but as being due to absorption of blue rays either by some yellow pigment in the crystalline lens or in the retina (Parsons, 1924b). Thus the original simple arrangement, which appeared to support the three-colour theory so strongly, has gone, for not one of the types of colour-blindness is believed to-day to be caused by the absence of a single sensation mediated by a particular type of receptor. Thus Young's original theory can no longer look to colour-blindness for support, as it once could. In order to come into line with the facts of colour-blindness as we now know them, the red receptor has to be regarded, as Wright (1946b) has pointed out, as being a composite affair, consisting of several different types of receptor—some for red rays, some for orange rays, some perhaps for yellow rays—interconnected in some way in order to mediate the red sensation. Hence Young's theory has been forced to adopt polychromatism in order to account for colour-blindness.

Section IV: The Inconstancy of the Receptor Curves

In the early days of the colour theories it was usual to deal with sensations. Accordingly, Young's theory supposed that to each primary colour there was a corresponding sensation. Thus red light, incident on an active retina, caused under suitable conditions a red sensation to be perceived, and so on for green and blue. Nowadays, in keeping with the times, we prefer to think in terms of the photoreceptors present in the retina, and by carefully planned experiments we try to determine their sensitivity to different parts of the spectrum; this is plotted against wave-length, thus producing what is called a "response curve." If the response curves derived by the different methods resembled one another exactly it would be very encouraging to Young's theory. But such is a long way from being the case, so far as present evidence is concerned. The red receptor is particularly unfortunate in this respect, for when deduced from the colour mixture equations it has a smooth curve, rising to a single crest at about 5,800 A.U. (Fig. 1). When, on the other hand, it was deduced by Willmer and Wright (1945) from the colour mixture curves for the human fovea, when viewing objects at small visual angles, it was found to have two crests—one at about 5,600 A.U. and the other at about 6,000 A.U. (Fig. 2). Further, in persons with green deficiency the crests of the red response curves differ in position, and in subjects with defective green vision they also vary (Figs. 3 and 4). When the troughs of the red response curves are similarly considered it is found that they also differ in position in the spectrum according to their derivation. Thus the curve obtained from colour mixture measurements has a trough at 5,000 A.U. (Fig. 1). That for reduced foveal colour vision has one at 4,600 A.U. (Fig. 2); while green-blind persons (deuteranopes) have a red response curve that has a trough at 4,400 A.U. (Fig. 3).

The green response curve is not so variable in shape as the red, but in this case also some differences occur which are hard to explain. The blue response curve has a crest which varies from about 4,500 to 4,800 A.U., but this may be caused by individual peculiarities in macular pigmentation.

Section V: Hue Discrimination

When a person with normal colour-vision looks at a spectrum there are parts where there is a rapid change of hue, and other parts in between where the change is slow. Thus it is particularly slow at the extreme red and violet ends of the spectrum and particularly rapid in the yellow. A thorough examination of the spectrum shows that there are four places where discrimination is good, which separate five places where it is poor (Fig. 5). Now the three-colour theory can account for only two of the good points and for only three of the poor ones (Fig. 6). This is so because good discrimination depends on the overlapping of the sensations, so that one—for example, the red—is diminishing at the same time that its neighbour, the green, is increasing, with change of position in the spectrum. Since there are two such places of overlap, one between the red and green and the other between the green and blue, two regions of good hue discrimination can be accounted for. This was found by calculation, both by Helmholtz and by Judd (Fig. 6). These ideas are substantiated by an examination of the hue-discrimination curves either of red-blind or of green-blind subjects, for in both cases the curves are U-shaped (Fig. 7), the centre of the trough occurring at the point of the spectrum where the response curves are undergoing the greatest relative change for a given alteration of wave-length. On the contrary, at parts of the spectrum where there is only one response curve present, there is no hue discrimination at all, and the curve in consequence shoots up to very high values. It does this on both sides of the trough, thus causing the curve to have a U shape. Now according to Young's theory of the three fundamental receptor processes, if one type is missing only two remain; thus both red-blind and green-blind persons are called "dichromats." Dichromatism is consequently always associated with a U-shaped hue-discrimination curve. Subjects with trichromatic vision would therefore be expected to have a double U-shaped curve, as both Helmholtz and Judd (1932) calculated to be the case. How, then, can a curve be accounted for, consisting of four U's, such as persons with normal vision are found experimentally to possess? It would seem evident that their colour-vision must be mediated by not less than five types of receptor. Some further evidence on this point will be given in the next section.

Section VI: Vision of Objects Subtending Small Angles at the Eye

There are several conditions which cause a subject with normal colour-vision to become temporarily colour-deficient or even colour-blind. Three of these conditions will be discussed here—namely, (1) a reduction of visual angle; (2) a reduction of illumination; and (3) the use of peripheral vision. Under all these conditions, with suitable adjustment, colour-vision gradually becomes defective, until finally a state of total colour-blindness is attained. In all three cases there appears to be a clearly marked intermediate stage between full colour-vision and complete colour-blindness, at which the subject is partially colour-defective. For this intermediate type of vision I have suggested the name "reduced colour-vision." From what has been stated above it may be inferred that there are three types of this: type 1, that produced by a reduction of visual angle; type 2, that produced by a reduction of light intensity; and type 3, that produced by the employment of the periphery of the retina. The first two types appear to have much in common; in fact, it may be found that they are identical in their properties. The third type is entirely different from the other two (see Section VII).

Type 1.—When coloured objects which subtend very small angles at the eye are looked at their colours become altered. Blue is replaced by dark grey or black, and yellow by pale grey or white. Other colours are also seen to change. Thus green loses its yellow tint and is replaced by blue-green; crimson is replaced by orange; and purple and mauve alter to shades of brown. Four colours seem to undergo hardly any change at this stage—red, orange, blue-green, and greenish blue. White undergoes no perceptible change at all. According to Willmer (1944), and to Thomson and Wright (1947), this change in

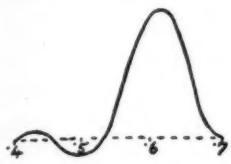


FIG. 1

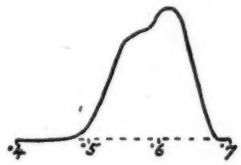


FIG. 2

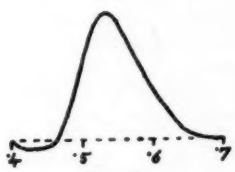
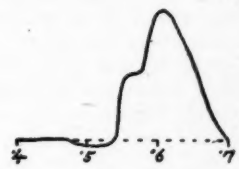


FIG. 3



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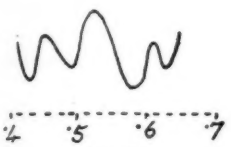

FIG. 5

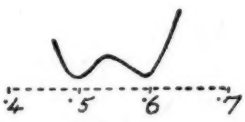

FIG. 6

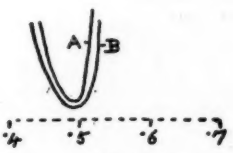

FIG. 7

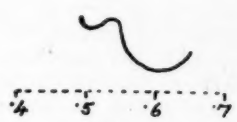

FIG. 8

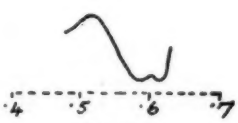

FIG. 9

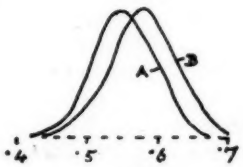

FIG. 10

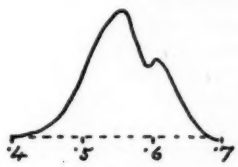

FIG. 11

Figs. 1, 2, 3, 4, 10, and 11.—Wavelengths horizontal; intensity in arbitrary units, vertical.

Figs. 5, 6, 7, 8, and 9.—Wavelengths horizontal; colour discrimination in arbitrary units, vertical.

FIG. 1.—Red response curve for a subject with normal colour vision. FIG. 2.—Red response curve for reduced foveal colour vision. FIG. 3.—Red response curve for a green-blind (deuteranopic) subject. FIG. 4.—Red response curve for a green-defective (deuteranomalous) subject. FIG. 5.—Hue discrimination curve for a subject with normal colour vision. FIG. 6.—Normal hue discrimination curve calculated by Helmholtz, from Young's theory. FIG. 7.—Hue discrimination curves: A, for a red-blind (protanopic) subject; B, for a green-blind (deuteranopic) subject. FIGS. 8 and 9.—Hue discrimination curves for reduced foveal colour vision. FIG. 10.—Luminosity curves: A, for a red-blind (protanopic) subject; B, for a green-blind (deuteranopic) subject. FIG. 11.—Luminosity curve for reduced foveal colour vision.

colour-vision is due to a temporary defect in the blue receptors, as if the retina had become locally blue-blind. If this were the case, then on the three-colour theory two sensations would be left in action—namely, the red and the green. Therefore white, since it stimulates both sensations, should look yellow, and so the colours seen by the eye should be red, yellow, green, and various hues made by their mixture. But the colours seen are red, orange, white, blue-green, and greenish blue, so that the explanation offered by Willmer and by Thomson and Wright seems to be at variance with the facts. A further piece of evidence against the acceptance of their explanation is the fact that a decrease in the brightness of the spectrum occurs both in the yellow and in the blue when normal colour-vision is replaced by reduced colour-vision, as is shown by the change in the shape of the luminosity curve obtained by Wright (1943) (see Figs. 10 and 11). Now, a decrease in the blue would be expected on their hypothesis, but not a decrease in the yellow as well; so that in this respect also their hypothesis does not seem to fit the observed facts. But there is a further difficulty in accepting their conclusion—namely, that if reduced colour-vision is equivalent to tritanopia, caused by the temporary insensitiveness of the blue receptors, then according to Young's theory a form of dichromatism should remain, and thus the hue-discrimination curve should be of the simple U type as shown in Fig. 7. Thomson and Wright (1947) did not obtain such a curve, however, but curves with a more complex form as shown in Figs. 8 and 9. This indicates the presence of a more elaborate type of vision than that provided by two receptors only. In my view reduced foveal vision is mediated by at least four receptors: red, orange, blue-green, and greenish blue; then the addition of yellow and blue in order to reconstitute full colour-vision should involve six types of receptor at least. Such a supposition is completely at variance with the trichromatic theory.

Type 2.—The reduced colour-vision which is found under conditions of feeble illumination was investigated by Abney and Festing (1892). They found that at an illumination of 0.0025 f.c. the spectrum appeared to begin at 6,250 A.U. in the orange, and reached its full intensity at 6,000 A.U. From there the colour became progressively paler, with change of wave-length, until all colour was lost at about 5,800 A.U. in the yellow. The spectrum remained colourless to 5,650 A.U., where a blue-green tint slowly developed, to reach its maximum at 5,200 A.U. This darkened and ceased to have a noticeable colour at about 5,000 A.U. in the blue-green part of the spectrum. Thus the red and blue ends of the spectrum had been replaced by dark grey or black, and yellow had been replaced by pale grey or white, as is found to be the case with the reduced colour-vision (type 1) caused by a reduction of visual angle. I have found that for every light intensity from 3,000 to 0.01 f.c. there is a corresponding visual angle at which full colour-vision is replaced by reduced colour-vision.

Type 3 will be considered in the following section.

Section VII: The Colour-vision of the Periphery of the Human Retina

If coloured test objects be examined first by the fovea centralis and then by a more peripheral part of the retina it will be found that certain of them undergo changes of colour or brightness. The colour-changes are summarized in the Table, together with those for reduced foveal colour-vision produced by a decrease in visual angle, which were considered in the previous section.

Table showing Colours Seen by Peripheral and by Reduced Foveal Vision

Colour	Periphery	Reduced Visual Angle
Red	Dark yellow-brown	Red
Orange	Yellow-brown	Orange
Yellow	Yellow	Pale grey
Green	Yellowish grey	Pale blue-green
Blue-green	Grey	Blue-green
Violet	Dark blue	Black
Purple	Dark blue-grey	Dark red-brown
Mauve	Dark yellow-brown	Red-brown
Crimson	Yellow-brown	Orange
White	White	White

These changes may be contrasted as follows: with a reduction of visual angle the yellow and the blue drop out, leaving red-orange and blue-green; with peripheral vision, on the contrary, it is the red-orange and the blue-green which drop out and yellow and blue which remain. Thus they appear to be the antithesis of one another. During both changes it should be noticed that white continues to be seen as white, indicating, in my opinion, that in both cases the colours which fall out are complementary pairs, leaving complementary pairs behind. Thus if the retina contained three pairs of complementary receptors—red and its complementary blue-green, orange and its complementary greenish-blue, and yellow and its complementary blue—and if these dropped out in pairs it would fit in with several of the observed facts. This does not exclude the possibility that, in addition to the complementary pairs just mentioned, there are other receptors which function in normal vision.

Section VIII: The Rival Theories

Only when the colour properties of peripheral vision remained apparently unaccounted for by Young's theory was there the possibility that one day the problem would be satisfactorily cleared up. But now that this theory is out of line with modern work on foveal vision, hue discrimination, micro-stimulation, micro-electrode results, and even colour-mixture and colour-blindness, the confidence of even its strongest supporters is shaken, and they give consideration to other theories of colour-vision.

Colour-mixture and micro-stimulation both suggest seven receptors; hue discrimination, more than five; reduced foveal vision, six or more. So that some form of polychromatic theory would seem to be indicated. If that proves to be the case a question that will arise is this: Why has vision been thought to be trichromatic for so long—in fact, until the recent introduction of more critical methods of research? One possible explanation may be founded on Granit's observations on frogs, for he discovered three main groups of receptors—a red group with crests at 6,000 and 5,800 A.U., a green group with crests at 5,400, 5,200, and 5,000 A.U., and a blue group with crests at 4,600 and 4,400 A.U. Now, it is possible that these act in group formation not because their nerve fibres are interconnected to form three main sensations but because of the overlapping of their response curves. Thus one touch-spot may behave as a single unit neither because it contains only one touch-sense organ nor because the nerve fibres of all the touch-sense organs present are interconnected, but because a force applied to the skin almost always stimulates them at the same time.

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Wiltshire has now adopted a scheme for part-time nursing similar to that working successfully in Gloucestershire, and it is hoped to recruit volunteers particularly from outlying districts by the provision of adequate transport to and from work.

ON COMPLETE REMOVAL OF THE PROSTATE

A PRELIMINARY COMMUNICATION

BY

H. S. SOUTTAR, C.B.E., M.Ch., F.R.C.S.

It will be generally agreed that the extravesical approach to the prostate introduced by Millan presents considerable advantages over the older transvesical methods. It enables one to observe every step of the operation in a way which was formerly impossible, bleeding is readily controlled, and the post-operative period is short and easy. Some recent experiences have, however, suggested to me that the operation for prostatic obstruction performed by this route is still capable of substantial development, and although some considerable time must elapse before this can be established it seemed worth while to place these experiences on record.

History of a Case

In operating a short time ago upon a man of 75 with obstruction of some standing I was surprised to find that instead of enucleating an adenoma as I intended I was enucleating the entire prostate, which had become detached from the triangular ligament. Moreover, on drawing the prostate away from the triangular ligament a tube of urethra emerged from that structure as a substantial muscular cylinder four centimetres in length. The only course was to divide this tube close to the prostate, which was then easily excised from the neck of the bladder after division of the ejaculatory ducts. The urethra was sutured to the neck of the bladder, and the latter was then sutured firmly to the triangular ligament, completely obliterating the prostatic cavity. To my great relief the operation was a complete success, the patient, a rather feeble old man, passing water normally on the sixth day.

Anatomy of the Prostate

On discussing the case with Prof. Wood Jones he told me that the free urethral tube is a fact of normal anatomy, although it was quite new to me, and I know of no reference to it in any textbook. What was abnormal in my patient was the ease with which the prostate became detached. I have since carried out a number of dissections which fully confirm this view. The normal anatomy is as follows:

The prostate is attached to the back of the pubes by two dense bands of great strength—the pubo-prostatic ligaments. Each of these forms a rounded tendon three or four millimetres in diameter, separated by a deep recess, the cave of Retzius, into which emerges the dorsal vein of the penis. On dividing these ligaments the prostate is easily shelled out from its bed, which is formed in front by the levator prostatae muscles and further back by the dense fascia of Dénonvilliers, which separates the prostate from the rectum. As the prostate is drawn upwards the membranous urethra emerges from the compressor muscles of the triangular ligament as a muscular tube three to four centimetres in length. It is true that a venous plexus is opened up, as this surrounds the prostate, but it does not appear to be of great moment and bleeding from it is easily controlled.

The existence of this urethral tube is obviously of great importance, for it enables us to provide a complete epithelial lining after removal of the prostatic urethra, and would seem to avoid any risk of stricture. It is of course a fragile tube and requires careful handling, but it is substantial enough to allow of accurate suture into the neck of the bladder. It is convenient to proceed as follows.

Operative Procedure

A No. 12 rubber bougie is passed into the urethra as far as the prostate or into the bladder. The prostate is exposed by a suprapubic incision and drawn upwards so that the pubo-prostatic ligaments are clearly seen. These ligaments are now divided, the bougie providing a guide to protect the urethra, when on drawing the prostate upwards the urethra will emerge from the triangular ligament carrying the bougie. The prostate can now be shelled out from its bed without difficulty; the bougie is withdrawn from it, but remains in the urethra, which is divided at the apex of the prostate. The prostate is turned forward and detached from the bladder after dividing the ejaculatory ducts. The bougie supporting the urethra is passed into the bladder and out through a puncture in its wall. The urethra is sutured with fine catgut to the neck of the bladder, which is now securely sutured to the triangular ligament, obliterating the prostatic cavity. The bougie is withdrawn through the bladder so far that it remains as a support for the new junction between the bladder and the urethra. The bladder is drained by a suitable suprapubic tube, into which the end of the

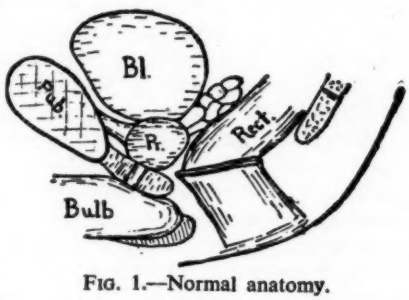


FIG. 1.—Normal anatomy.

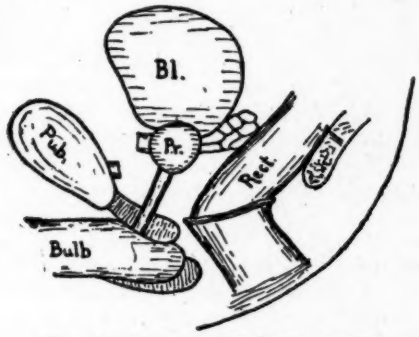


FIG. 2.—Ligaments divided; prostate retracted.

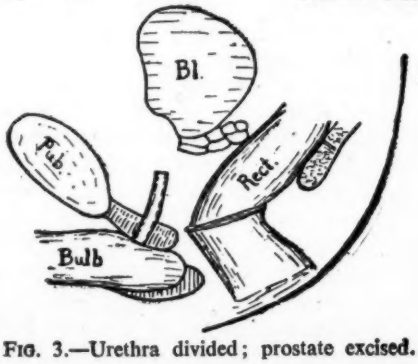


FIG. 3.—Urethra divided; prostate excised.

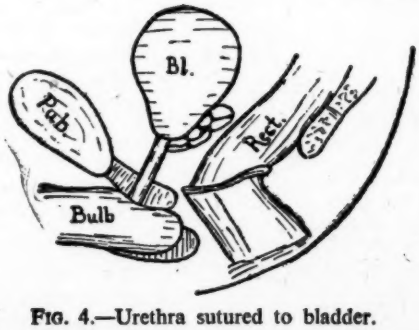


FIG. 4.—Urethra sutured to bladder.

FIG. 5.—Bladder sutured to urogenital diaphragm.

bougie may conveniently be fixed. The bougie may be removed in four days and the suprapubic tube as soon as it is certain that the patient can pass water.

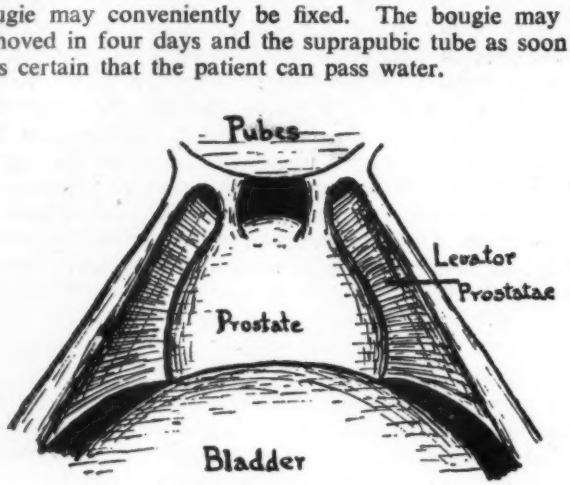


FIG. 6.—Normal anatomy.

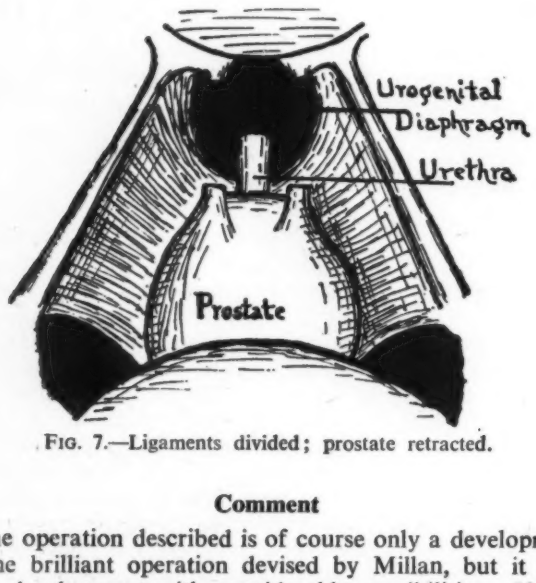


FIG. 7.—Ligaments divided; prostate retracted.

Comment

The operation described is of course only a development of the brilliant operation devised by Millan, but it may be a development with considerable possibilities. If further experience confirms its practicability it would seem to present certain definite advantages. The prostate is removed as a whole and the technique of its removal is little affected by its precise pathology. Indeed, it might well be applicable to early carcinoma. The cavity left is completely obliterated and later haemorrhage is unlikely. A complete urethra is provided from the outset and the risk of a stricture is minimized. So far the operation has been carried out in only a few cases, and obviously a wide experience will be required before its value can be assessed. But it would seem to be based on sound anatomical principles, and sufficient success has already been achieved to convince me that it is worthy of an extended trial.

The following recommendations on visual standards for candidates for the teaching profession have been made by the Faculty of Ophthalmologists at the request of the Ministry of Education: (1) Visual acuity, with correcting glasses, should not be less than 6/12 in the better eye. (2) At the age of 18 no refractive error should debar a candidate from training, but all cases in which the vision in either eye is less than 6/9 uncorrected must be referred for an ophthalmic surgeon's report and prognosis. (3) On reference to an ophthalmic surgeon information is required on the following points: (*a*) The nature and extent of the defect; (*b*) whether it can be corrected by glasses satisfactorily for the project in view; (*c*) whether it is progressive; (*d*) whether the existence of the defect is likely to interfere with the candidate's efficiency as a teacher.

A NEW EUPHORIANT FOR DEPRESSIVE MENTAL STATES

BY

G. TAYLEUR STOCKINGS, M.B., B.S., D.P.M.

Late Major, Specialist in Psychological Medicine, R.A.M.C.; Ernest Hart Memorial Scholar, British Medical Association

The Syndrome of Thalamic Dysfunction

The syndrome of thalamic dysfunction, or neurotic depression, is the commonest of psychiatric conditions encountered in general practice, and often one of the most intractable and difficult to treat effectively. The commonest forms of the condition are the chronic neurotic depressions, anxiety states, reactive and hysterical depressions, and obsessional disorders. The milder forms of depressions of later life, in which the dysphoria is unaccompanied by hallucinosis, delusions, and other gross psychotic symptoms, may also be included in this group of conditions.

The essential feature common to all of these disorders is a condition of the nervous system in which the perception-threshold for unpleasant affects and sensory impressions is markedly lowered, while that for pleasant affect and sensation is correspondingly raised—the anhedonic or dysphoric syndrome. The resulting dysphoria or mental pain may present itself in one or two forms, or a combination of both. In the manifest type it takes the form of conscious depression or unpleasant mental tension; in the sensorial or conversion type it presents itself as a persistent and disagreable bodily sensation, either localized or diffuse, common examples of which are pressure-headache, generalized pains, hyperalgesia, gastric pains without organic basis, vertigo, and feelings of abnormal tiredness and weakness.

Although it is generally taught at the present day that these conditions are entirely psychogenic in origin, there would appear to be strong evidence that the basis of the condition is primarily a disturbance of the thalamic-hypothalamic mechanisms, possibly a metabolic disorder. Suggestive facts are the absence in a large proportion of such cases of any evidence of mental conflict, and the concomitant symptoms of disturbed body-metabolism and autonomic imbalance, such as vasomotor disturbances, central nervous instability as shown by muscular tremors, hyperalgesia, and other sensory disorders, vegetative disturbances, and metabolic anomalies as demonstrated by biochemical tests.

The commonest symptoms of thalamic dysfunction in order of frequency are: depression, irritability, and emotional instability, with anxiety and sense of unpleasant mental tension, in the affective sphere; in the sensory sphere, pains and paraesthesias of various kinds, such as pressure-headache, various vague pains and aches of infinite variety, which may be referred to any part of the body, gastralgia, low backache, and dysuria or other symptoms referred to the urogenital tract; in the sphere of thought, inability to concentrate, obsessional thoughts, phobias, and transient periods of confusion ("blackouts"); in the motor system, tremors, sensations of weakness and loss of energy, with abnormal tiredness; and in the vegetative systems, insomnia, anorexia, gastrointestinal disturbances, vertigo, sexual dysfunctions, and vasomotor symptoms such as flushing, palpitations, effort syndrome, and syncopal attacks without apparent organic basis.

The thalamic dysfunction state may be regarded as a response of the organism to stresses of various kinds. It is one of the commonest causes of chronic ill-health and

loss of efficiency, and one of the most unsatisfactory of conditions to treat. Its victims form a large proportion of the "chronics" who regularly attend hospital out-patient clinics, and there is probably no patient who is more dreaded by the overworked practitioner than the chronic neurotic-depressive.

Treatment of the thalamic dysfunction syndrome is often unsatisfactory because there is no specific drug therapy known at present for the condition. Psychotherapeutic methods are lengthy, tedious, and often unsatisfactory, since in a large proportion of such cases the causal factors (unsatisfactory home life, faulty conditioning in childhood, etc.) cannot be removed, while not uncommonly it is found that the neurotic behaviour-patterns persist even when the precipitating stresses have been removed. Psychotherapeutic methods usually require specialized training in the physician, and an effective symptomatic therapy aimed at keeping the patient fit and in full working efficiency during the period of analytic or other treatment is at present lacking, since the commonly employed remedies, such as cortical sedatives and stimulants, offer at best only partial relief on account of their lack of specific effect on the thalamic centres, while endocrine preparations, vitamins, and measures to improve the general health have, generally speaking, proved largely unsuccessful.

Principles of Treatment by Euphorigenic Drugs

The most important therapeutic advances in psychiatry, as in general medicine, have been the discovery of specific pharmacological or physical agents for the various disease conditions. Similarly, the logical answer to the thalamic dysfunction states would be a drug possessing a specific reversing effect on the thalamic disturbance—in other words, a powerful euphorigenic drug which would be therapeutically effective and at the same time free from the objectionable properties usually associated with narcotic compounds.

The ideal euphoriant for clinical use should possess the following properties. It must induce a high degree of euphoria, must be stable and fully active by the oral route, be reasonably rapid-acting, and have a prolonged action. It must be of low toxicity, non-cumulative, and free from after-effects and undesirable effects on the higher cortical functions, such as impairment of concentration, judgment, and memory. Most important of all, it must not have the property of inducing the condition of addiction or physical dependence when administered for long periods.

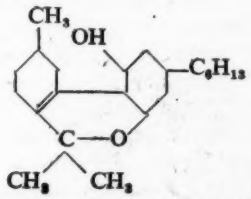
The last-mentioned point is of especial importance, since there is a common and widespread belief that all euphoriant drugs are necessarily habit-forming, whereas this is in fact not the case. The true addiction syndrome (physical craving, tolerance, abstention syndrome, and personality deterioration) is peculiar to the drugs of the ecgonine (or cocaine) and phenanthrene (or morphine) groups; whereas mescaline and cannabis indica, the two most powerful euphoriants known, do not induce a comparable addiction. The addiction-forming property would therefore appear to depend on chemical constitution rather than degree of euphorigenicity, since the two compounds just mentioned are chemically unrelated to the cocaine and morphine drugs. Theoretically, therefore, the addiction problem should not offer an insuperable obstacle to such a form of therapy, provided the compound employed is not one of the ecgonine or phenanthrene class.

Up to the present time no drug which fulfils these requirements has been known to medicine. During the last century attempts were made to utilize the euphorigenic properties of cannabis in the treatment of depressive states, but these were found to be unsatisfactory for various reasons: chief of these were the difficulty of obtaining reliable and stable preparations of this drug, its uncertain action, and its peculiar and undesirable side-effects, of which actual intensification of the dysphoria is one of the commonest. The discovery of the new synthetic cannabis-like derivatives of the dibenzopyran class within the last few years, however, has placed in our hands an entirely new type of euphoriant drug with properties which render it an extremely promising therapeutic agent in psychiatry.

The Synthetic Tetrahydrocannabinols

These compounds have been produced as the result of the work carried out by Adams and his colleagues in America and of Todd and his colleagues and the Roche Research Department in this country.

Several compounds of this type are known, and one of the most active pharmacologically is the synthetic hexyl analogue called in America synhexyl, pyrahexyl, or parahexyl. Chemically it is 1-hydroxy-3-*n*-hexyl-6-6-9-trimethyl-7-8-9-10-tetrahydro-6-dibenzopyran, and has the following structural formula:



It is synthesized by condensation of ethyl-5-methylcyclohexanone-carboxylate-2 with 3 : 5-dihydroxy-*n*-hexylbenzene, followed by treatment of the condensation product with methyl magnesium iodide. It is a pale-yellow, translucent, very viscous, odourless resin, soluble in organic solvents but insoluble in water, alkalis, and acids. The synthetic lower homologue in which *n*-amyl replaces the *n*-hexyl radicle is pharmacologically less active. Its laevorotatory form is several times as active as the dextrorotatory form.

Pharmacology of Synhexyl in Man

The pharmacological properties of synhexyl are in many respects similar to those of cannabis, but there are several important qualitative differences in the human subject. The following data were obtained as the result of a series of experiments which I carried out on myself, a group of normal subjects, and a group of 50 depressive patients. My findings confirm that the drug is a powerful euphoriant with a specific action on the higher centres, particularly the thalamic system and its cortical connexions. Synhexyl is rather more potent weight for weight than natural cannabis, the effective dosage being from 5–15 mg. in normal subjects to 60–90 mg. in depressive patients. In narcotic drug addicts doses of 60–240 mg. three times daily may be given without ill effects (Himmelsbach). On account of its resinous nature the drug is most active when administered by the oral route, and the preparation I used was in the form of a powder made by absorbing the drug on silicic acid and contained in gelatin capsules, or as compressed tablets after absorption on kieselguhr.

The general effects in normal man are as follows: There is first a latent period of 1½ to 3 hours before any effect is felt, this being about twice the latent period for the same dose of cannabis extract. The onset of the synhexyl effect is characteristically abrupt, with a sudden and peculiar sensation of lightness and mild intoxication accompanied by acceleration of the pulse and feelings of slight palpitation and oppression in the head and chest. Transient feelings of anxiety and vertigo may occur at the onset, but these usually pass off in the course of a few minutes to half an hour. The euphoric effect quickly

follows, and consists of a pleasant feeling of happiness and exhilaration with a marked sense of physical well-being and self-confidence; there is a sense of relief from tension and anxiety, and the threshold for unpleasant affect is markedly raised, while that for pleasant feeling-tone is correspondingly lowered. There is increased enjoyment of normally pleasant impressions, and zest for life and working capacity may be actually increased in the early stages of the intoxication. Later this effect gives way to a sense of dreamy apathy and contentment, which with the larger dosages may reach the stage of ecstasy. There is often increased speed of the stream of thought, with a marked increase in the power of fantasy and vividness of visual imagery. With the larger dosages there may in the early stages be a tendency to flight of ideas and pressure of activity. In the sensory sphere there is little or no true analgesic effect of the opiate type. With the higher doses there may be some degree of blunting of sensation, but the senses of taste and hearing may actually become more acute. A generalized sensation of pleasant warmth diffused throughout the body is characteristic.

Hallucinatory phenomena and distortion of the tempero-spatial perception sense of cannabis–mescal type are not found, although elementary visual sensations in the form of photopsias and simple coloured patterns may occur when the eyes are closed or the subject is in darkness. A peculiar visual illusion is sometimes seen in which the colours and outlines of objects appear abnormally vivid and a soft golden radiance seems to be diffused over the whole room. With larger doses visual illusions of cannabis type may be experienced in which simple patterns appear to acquire complex and fantastic forms, the whole effect being extremely pleasing to the subject. On the motor side there may be slight restlessness in the early stages, similar to what is found with moderate doses of benzedrine. Hyperreflexia is common, but ataxia and motor incoordination are seen only with the largest doses. Katatonia and rigidity as seen with mescaline are never found.

The vegetative effects are very slight, consisting of moderate tachycardia in the early stages, slight mydriasis, and dryness of the mouth. Appetite is usually increased, there is no respiratory or peristaltic depression, and sleep following the intoxication is normal and dreamless. Slight drowsiness may occur in the later stages, but "hangover" effects are seen only after very large doses.

Characteristic of the synhexyl effect is intermittency; the symptoms, as with cannabis and mescaline intoxication, occur in rhythmic waves with intervening periods of apparent normality. The average duration of the effects is from 8 to 10 hours from the time of onset of the symptoms.

With excessively large doses, the toxic effects are frightening rather than actually dangerous, resembling those of acute cannabis poisoning. The onset occurs with a sudden feeling of acute apprehension and collapse, with rapid bounding pulse, mydriasis and dryness of the mouth and throat, hyperreflexia, clonic twitchings, mental confusion, headache, and vertigo. Euphoria is absent, the emotional reaction being one of acute anxiety and apprehension. These symptoms usually pass off completely in 12 to 24 hours. The biochemical changes produced by the drug are slight, consisting of increased blood concentration and haemoglobin value, and mild hypoglycaemia. There may be slight diuresis and rise of temperature; other changes include a slight rise in blood pressure, cerebral hyperaemia, and increase in the venous pressures.

Absorption of the drug apparently takes place through the lacteal vessels of the small intestine, since it is a resinous substance and cannot therefore be absorbed direct through the stomach wall, as is the case with alkaloids and other water-soluble substances. This would account for the long latent period between ingestion and onset of symptoms of intoxication, which is normally of the order of two to three hours. The drug is partly destroyed by oxidation in the liver, but a certain proportion is excreted unchanged in the urine, in which respect it resembles natural cannabis and mescaline.

Effects on the Intellectual Functions

Studies which I made on myself and a group of normal subjects show that with ordinary therapeutic doses there is little or no deleterious effect on the intellectual performance. Seven of my depressive patients were studied by means of psychometric tests selected from the revised Terman-Merrill scale. The results suggest that memory work calling for the use of reasoning powers and logical integration of facts suffers slightly after taking the drug, but that the more mechanical memory is unimpaired and may actually show a slight improvement. In normal subjects engaged in work of an intellectual nature there appears to be little or no falling-off of intellectual capacity, the only inconvenience experienced from the drug being the slight distractibility and pressure of ideas, and the tendency to day-dreaming and wandering of the stream of thought in the later stages.

Therapeutic Trials in Depressive Patients

Therapeutic trials were made with the drug in a series of 50 patients showing the thalamic dysfunction syndrome, including cases of both the dysoxic (depressive-psychotic) and the neurotic-depressive types. The dosages employed varied from 15 to 90 mg., the drug being administered in all cases immediately on rising in the morning before a meal was taken. Suggestion and other psychological factors which might have vitiated the results were eliminated by substituting, without the patient's knowledge on certain days, inert control tablets of exactly similar appearance to those containing the synhexyl.

The general effects were found to be qualitatively similar to those in the normal subject, except that a considerably higher average dose was required to produce improvement of the depressive symptoms. It was found that the dysphoria itself was ameliorated to a much greater degree than the other symptoms (obsessional thoughts, pains, paraesthesias, etc.); these features, although themselves little affected, were rendered less distressing and obtrusive to the patient by the action of the drug.

Of the 50 cases tested 36 showed a definite improvement in affective reaction, while 14 were unaffected or made worse. Twenty-seven of the series were neurotic-depressives, 20 of whom showed improvement; of these 27, 12 were typical chronic mental hospital cases, of whom 9 benefited from the drug. Of these 12, 9 had previously been treated with electro-anoxia with no improvement, and 3 had been subjected to prefrontal leucotomy with no response. The remaining 23 patients were cases of dysoxic depression, of whom all but 4 were chronic institutionalized patients with mild symptoms of dysphoric type. Four of the 23 had previously received electro-anoxia with temporary improvement only; of these four, two responded favourably to the drug.

Of the whole series 16 patients showed associated organic diseases, as follows: gross bony deformity, 2; pulmonary tuberculosis, 2; cardiovascular disease, 5; senile changes, 4; malignant disease, 1; organic nervous disease, 1; thyrotoxicosis, 1. No untoward side-effects from the synhexyl were noted in any of these cases. Untoward effects were noted in 5 of the neurotic-depressive cases; these included tachycardia, slight dizziness, loss of concentration, drowsiness, and mild degrees of impairment of the intellectual performance.

The criteria for a positive response were taken as the following: amelioration of mood, as shown subjectively by the patients' own statements and objectively by clinical evidence of diminution of retardation, anxiety, and inward preoccupation; increased zest for and interest in work and occupation; and increased psychotherapeutic rapport. The effect of the drug on obsessional and depressive ideas and pains and paraesthesias of central origin was also noted. The nursing staff were carefully instructed to note during the tests any changes in the general behaviour and demeanour of the patients while receiving the drug. The results with synhexyl were then compared with the response to inert control tablets.

Of the dysoxic patients those in the chronic stationary phase of their disease made the best response. Three dysoxics in the acute depressive phase either showed no response or were actually made worse when synhexyl was given in doses of 60–90 mg.

Of the neurotic group, the quiet apathetic type with depression and general asthenia appeared to do best; this type required the smallest dosage to effect improvement —15 mg. The tense and over-anxious type also showed a good response but tended to require a rather higher dosage—30–60 mg. The anxiety cases with multiple pains and paraesthesias were found to improve considerably as regards the dysphoria, but the drug seemed to have little effect on the actual sensory features. Six of the neurotic cases were severe examples of the obsessive-ruminative type, only one of whom failed to improve with the drug.

Neurotic-depressive cases showing a negative response included psychopathic personality with dysphoric features (two cases) and acute hysterical grief reaction with pseudo-hallucinosis (one case).

Illustrative Cases

Case 1.—A woman aged 60, with a history of recurrent attacks of depression over the last three years. On examination she was tense, agitated, acutely apprehensive, restless and excitable at times, and expressed self-depreciatory ideas of being wicked and worthless. Orientation and memory were unaffected and insight and judgment were moderately good, but she co-operated poorly in examination owing to her constant preoccupation with delusions of unworthiness. Physical findings were negative. She received electric convulsion treatment with no real improvement, remaining in the agitated state described above. After receiving 30 to 45 mg. of synhexyl daily she showed marked improvement; she said she felt brighter, and the agitation and tension were definitely diminished. Although the ideas of unworthiness persisted in mild degree, these were much less obtrusive and distressing. No untoward symptoms were noted, and response to control tablets was negative.

Case 2.—A man aged 65. The history was very incomplete, but it appeared that he was originally admitted in 1938, following the sudden onset of an acute depressive-confusional state with paranoid and possibly hallucinatory features. On examination he was depressed, apathetic, hypochondriacal and full of ideas of visceral dysfunction, totally lacking in initiative, but well behaved and clean in habits. There were no signs of hallucinosis or paranoid features, but he showed a mild degree of personality deterioration, being at times facile, rambling, and irrelevant in conversation. Physical investigations were negative. He responded fairly well to 30 mg. of synhexyl daily, becoming brighter, less querulous and preoccupied with his aches and pains, and stated that he felt more cheerful and energetic. The symptoms of cortical deterioration and institutionalization were, however, unchanged. No side-effects were apparent during the period of medication.

Case 3.—A woman aged 67 with a history of recurrent depressive attacks since 1936, and two previous admissions to hospital for acute depression. Examination showed her to be depressed, solitary, and lacking in interest and initiative. She complained of obstinate insomnia, and required constant nocturnal sedation. She displayed no evidence of delusions and hallucinations, but tended to be mildly retarded and sat about aimlessly all day in the ward. Physical examination revealed a slow-growing breast carcinoma, for which operation had been considered inadvisable. She had previously received E.C.T. with little or no improvement. She received synhexyl in a dosage of 15 mg. daily with considerable subjective and objective improvement. She felt brighter, more alert and cheerful, and showed increased initiative and spontaneous activity. Side-effects were absent, and administration of control tablets failed to reproduce the synhexyl effect.

Case 4.—A woman aged 45. She had a history of the onset, three months previously, of acute depression with agitation, ideas of bodily disease, and delusions of sin and unworthiness, apparently precipitated by an unhappy home environment. When she was first seen the acute phase of the illness had subsided and she talked rationally, showing considerable insight. She complained of mild depression, fatigability, and insomnia, with a variety of vague stomach pains and soreness and pains in her throat. She insisted that she had "swollen and painful glands" in her neck; but examination showed only a small palpable cervical gland on the right side, the throat and tonsils being normal. She also complained of feelings of "being all trembly inside." Delusions of unworthiness were not in evidence. She was a small, pale, anxious-looking woman, but no signs of organic disease were present. She was described by the nursing staff as depressed, solitary, and apathetic in habits. The administration of 45 mg. of synhexyl produced an immediate effect; she stated that she felt subjectively brighter and more cheerful, showed increased interest, and her hypochondriacal ideas receded into the background. Vasomotor side-effects were absent, control tests giving a negative result.

Case 5.—A woman aged 52, with thalamic dysfunction of conversion hysteria type. She had a history of depression for 18 months following evacuation during the flying-bomb raids and an accident to her son. She had also had a previous depressive attack 28 years ago. On examination she was depressed, tense, emotional, and anxious. Her main complaints were of insomnia, inability to face up to her household duties, and a persistent neuralgic pain located under the left breast. Physical findings were completely negative. A few weeks previously she received seven applications of E.C.T. with slight improvement but speedy relapse. The response to 30 mg. of synhexyl was immediate; she lost her anxiety and depression, said she felt much brighter, and the thoracic pain became much less insistent and distressing, although not completely abolished. Control tablets and bromide in full dosage failed to reproduce these effects. No side-effects from the synhexyl were complained of during the period of administration.

Case 6.—A woman aged 32 with thalamic dysfunction of anxiety type. She had a history of anxiety symptoms 18 months previously, and partial remission but recurrence four months before admission, at which time she had gone to live with and look after her invalid mother. On examination she was a superior and intelligent type of woman, outwardly cheerful in manner, but actually tense, anxious, and mildly depressed. She complained of insomnia, intermittent panic sensations with palpitation, and acute feelings of inner tension and "shivering sensations," and loss of concentration. Physical findings were negative, and no signs suggestive of thyroid hyperfunction were evident. The symptoms failed to respond to bromide therapy and psychotherapy. She responded well to synhexyl in doses of 30 mg. daily, the anxiety attacks and dysphoria being completely abolished. She stated that she felt much brighter, more confident, and was no longer apprehensive of the anxiety attacks. Her symptoms recurred on changing over to control tablets or discontinuing the synhexyl.

Of these six cases, selected at random from my series, the first four were dysoxic (psychotic-depressive) cases and the last two examples of simple thalamic dysfunction (neurotic depression). The four dysoxic cases were all patients who had passed through the acute phase of their illness and who presented as the principal symptom a residual dysphoria of chronic and intractable type. Of these four, one (Case 2) showed some degree of personality deterioration. The two neurotic cases were of recent onset and in the early stages of their illness. Of the six

cases, three (Cases 1, 3, 5) had previously failed to respond satisfactorily to E.C.T. It will be evident from this series that synhexyl is as effective in the milder forms of dysoxia as in the purely neurotic-depressive states.

As regards the mechanism of improvement, it should be pointed out that synhexyl does not effect a permanent "cure" in the same way as electro-anoxia does in typical dysoxic depressions. The effect lasts only during the period of administration of the drug; it is therefore a substitution therapy, like insulin treatment in diabetes or liver extract in pernicious anaemia. The action would seem to be a combination of stimulation and depression, resulting in a general raising of the anhedonic threshold. The principal site of action of the drug is almost certainly the thalamic centres and their cortical connexions, as is the case with morphine and other powerful central analgesic drugs.

The beneficial effects of synhexyl do not appear to be adversely affected by chronicity, concomitant organic disease, or the presence of an organic brain lesion, whether pathologically or surgically induced. There is evidence, however, that drugs of this class are ineffective in the acute dysoxic depressions, and cannot be regarded as substitutes for anoxic therapy in this form of metabolic brain disease.

General Conclusions

The results of these preliminary trials would suggest that we have in this class of compounds a promising therapeutic agent for the treatment of the chronic and intractable depressive states. Synhexyl, the most active of this class, has the advantages of low toxicity, minimum of side-effects, ease of administration, and chemical stability. Its use is not contraindicated by the presence of coexisting organic disease, and it is suitable for out-patient practice. Its use does not interfere with other therapeutic measures, such as occupational therapy and psychotherapy. It is free from the risks and disadvantages of the more drastic forms of treatment, and might replace those methods for the milder depressions of later life where for any reason the more drastic procedures are contraindicated.

Its main drawbacks at present are its insoluble nature, slow and uncertain action, and comparatively weak analgesic effect, so that it is relatively ineffective in the severer forms of sensory thalamic dysfunction syndrome. Experiments are at present in progress with the object of producing a water-soluble form with a higher degree of analgesic activity.

Summary

The syndrome of thalamic dysfunction and the principles of its treatment with euphorigenic drugs are described.

The properties and pharmacology of synhexyl, a new drug of the synthetic tetrahydrocannabinol class, are examined.

The results of therapeutic trials with the drug in a series of 50 depressive patients are given.

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TYPE I TRIPLE CARDIAC RHYTHM IN NORMAL HEARTS

A STUDY OF 1,360 NAVAL RECRUITS AND PERSONNEL

BY

P. J. O'MEARA, M.B., Ch.B.

Surgeon Lieutenant-Commander, R.N.

Triple cardiac rhythm is defined by Evans (1943) as "the cadence produced when three sounds recur in successive cardiac cycles." He then classifies such rhythm into types I, II, and III, which correspond respectively to the proto-diastolic, presystolic, and systolic forms of "gallop" rhythm of Potain (1856–1900). The term "gallop" is not used in Evans's classification because it is usually only when tachycardia is also present that a cadence somewhat inadequately described as resembling the gallop or canter of a horse is found to be present.

Type I triple rhythm results from the presence of a third heart sound occurring shortly after the normal second. Thayer (1908, 1909) called attention to the fact that the third heart sound, described by Gibson (1907), Hirschfelder (1907), and Einthoven (1907), and mentioned even earlier by Obrastzow (1905), could often be heard in healthy people; he found it in 65% of 231 consecutive individuals below the age of 40. Subsequently Gallavardin (1912) said that he heard it occasionally in young individuals. Bridgman (1915) reported it in 13 out of 16 normal boys aged 12 to 15 and found it in phonocardiograms of all. Obrastzow and Gubergritz (1919) heard the sound in 90 to 93% of normal men; Steinberg (1925) in 95% of boys between the ages of 4 and 14; and Melik-Gülnasarian (1932) in 57% of his cases, especially in young men between 20 and 25 years of age. Bramwell (1943) encountered it in 18.8% of 835 recruits referred to him by medical boards of the Ministry of Labour and National Service. Among the 228 individuals in this group below 20 years of age it was present in 43%. None of these recruits had a cardiac lesion.

The purpose of the present purely clinical investigation is to emphasize the frequency of type I triple rhythm in healthy males and to study its features. That its common incidence is not appreciated enough nor its features sufficiently well known is evident from the number of times it gives rise to a diagnosis of mitral stenosis—especially when accompanied, as it may well be, by a mitral systolic murmur and perhaps a split second sound in the pulmonary area. A history of rheumatic fever in such an individual is then accepted as the final link in the diagnosis. As Evans (1943) remarks, "A general acceptance of the fact that this form of triple rhythm is so common in young subjects is overdue." That it is far from rare in the not-so-young requires emphasis also.

Method and Material

The subjects of this survey consisted at first of 1,000 consecutive healthy male adults between 17 and 30 years of age inclusive who underwent routine examination by me for a variety of purposes. Later 360 men above the age of 30 were examined. All these individuals were considered healthy on the grounds that they presented no symptoms or physical signs of any disease whatsoever; nor did they give any history of any cardiovascular disease. Some of the older men showed palpable thickening of the radial arteries commensurate with their age, but any who had blood pressures above 160 systolic or 90 diastolic were excluded.

The following routine was adopted in the examination of the heart in every one of these subjects: examination (i) in the erect position, (ii) in the recumbent position, (iii) lying on the left side (left lateral position), and (iv) in the left lateral position after sitting up quickly from the recumbent position six times. Before proceeding to stage three—that is, with the subject on his back—the pulse rate and blood pressure were recorded. In the few cases in which time permitted the performance of exercise tolerance tests, or in which these were compulsory, as in Fleet Air Arm candidates, the information so obtained gave the impression of bearing no significant relation to the occurrence of triple rhythm.

Only those examples of type I triple rhythm were recorded which were evident with the subject erect or lying down, since the examination of the heart does not usually go beyond this stage unless the doctor has some reason to proceed further before eliminating the possibility of a cardiac lesion.

Incidence of a Third Heart Sound

Table I shows the frequency with which a third sound was recorded among 1,360 Naval recruits and personnel.

TABLE I.—*Incidence of a Third Heart Sound Among 1,360 Healthy Males*

Age:	17–20 incl.	21–30	31–40	41–50	51–60	61–67	Total
No. examined ..	745	255	174	103	70	13	1,360
No. with third sound	399	89	44	16	4	0	552
% " " "	53·6	34·9	25·3	15·5	5·7	0	40·6

As already described, the examination of the 1,000 aged 17 to 30 inclusive was completed before that of the older group was begun. Now, although I had been impressed by the frequency of a third sound before beginning the present investigation, it was found that by listening intently for it in case after case the sensitivity of the ear was increased to a remarkable degree; this may be seen from a study of Table II, which gives the incidence of the sound among the last 400 of the 1,000 males under 31 years of age.

TABLE II.—*The Third Sound in the Last 400 Males Below 31 Years of Age*

Age:	17–20	21–30	Total
No. examined	325	75	400
No. with third sound ..	231	37	268
% " " "	71·08	49·3	67·0

It is considered that this figure of 67% forms a more accurate estimate of the incidence of the third sound among males of this age group than that obtained from Table I (399 + 89 = 488 or 48.8%).

Some Features of the Third Heart Sound

Characteristics.—These have been aptly described by various authors as "short and dull, a sort of thud" (Potain, 1856–1900), "dull shock rather than sound" (Thayer, 1908, 1909). Potain further likened it to the recoil of a drum or the rebound of a hammer on an anvil. As a rule the third sound is of less intensity than either of the other two. However, Wolferth and Margolies (1933) remarked that occasionally it might be the loudest of the three, and this was found to be not unusual among the younger members of the present series. Frequently in the present series the third sound was palpable at the apex beat; sometimes it was visible also. In no case could it be more easily felt than heard even when a pronounced proto-diastolic gallop rhythm was present. "Gallop" rhythm is usually described as being more easily felt than heard, but it is possible that this is generally true only of the pre-systolic variety which results from the presence of a fourth sound.

Site of Maximum Intensity.—The third sound is usually described as being heard best at or near the apex beat. Evans (1943), on the other hand, lays stress on the fact that in normal individuals he found it most audible in the fourth intercostal space, half-way between the nipple line and the left border of the sternum; in other words, a little internal to the mitral area. In every case in which I identified a third heart sound it was loudest at the site of the apex beat. When faint it was present at the apex beat only; when more prominent it could be heard with diminishing intensity for a distance of about 2 in. (5 cm.) outside the nipple area—in rarer cases even as far out as the anterior axillary line. As a rule it was heard furthest from the apex beat internally, along the left sternal border or along a line passing from the apex beat towards the pulmonary area; occasionally it was faintly audible in the pulmonary area itself. In a rather nervous young man of 23 it could be heard as high as the left sterno-clavicular joint, as far out as the mid-axilla, and as far to the right as the right sternal border. In another youth, aged 19, it was audible in the mid-axilla and beyond the right sternal border. In both, however, it was maximal at the apex beat.

Influence of Age upon the Third Sound.—Previous writers have remarked upon the decreasing incidence of this sound with advancing age (Thayer, 1908, 1909; Evans, 1943, 1945), and this is clearly illustrated among the present subjects. Evans (1945) states definitely that it is never found in a healthy heart after the age of 40. However, the figures in Table I do not bear this out. Certainly in the sixth decade the sound is unusual, while beyond this age it is possible that it never occurs in the absence of disease. Thayer (1909) suggested that this increasing rarity of the sound with age might be explained by the comparative thinness and elasticity of the chest wall in the young and the absence of intervening lung. After the age of 40, and especially after 50, all the heart sounds become increasingly difficult to hear and their characters alter. They become shorter, more distant, and less resonant; often the first sound can scarcely be heard at all. It is not surprising, therefore, that the third sound, which is usually of much less intensity than either of the other two in healthy people, should be so difficult to hear in older subjects.

Influence of Posture.—In only two of the 1,360 subjects could a third sound be heard at stage (i) of the examination—that is, with the individual erect. The ages of these two were 17 and 19, and both were of poor physique; in each case the sound was much louder with the subject recumbent. In some cases, examined after rising from recumbency, a third sound continued, but only so long as the pulse rate produced by the act of rising was maintained. Evans (1943) made similar observations on 125 normal hearts presenting a third sound, though in his series the sound persisted in the erect position in 13. However, all the patients examined by Evans had been sufficiently problematical to require reference to him for further opinion and were therefore, in a sense, selected.

Influence of Respiration.—In the majority of the present series I found the third sound most audible in normal expirations; with forced expiration it often disappeared. Sometimes, usually among the older members of the series, it was most easily heard at about mid-inspiration. Unless very prominent it was absent at the height of normal inspiration, and in almost every case it disappeared on forced inspiration.

Influence of the Pulse Rate.—The lowest pulse rate among those with a third heart sound was 48; the highest

132; the average 80. The last compared with an average of 76 in those without the sound. Bramwell (1943) also noticed no significant difference between the pulse rate of those with and those without the sound. Thayer (1909) considered the former to have a somewhat slower rate than the latter. He also gained the impression that the sound was more pronounced in subjects who had just lain down than in those who had been longer recumbent. I frequently noticed that a third heart sound would disappear as the examination of the recumbent patient continued. More often, however, a third sound would appear for the first time after the subject had been lying down for a minute or two. Again, the production of tachycardia by means of exercise, while generally increasing the intensity of the sound, would in some cases decrease it—occasionally causing the sound to disappear. All this suggests that in each individual there is an optimum pulse rate, varying from case to case, at which the sound is best heard. Probably the force of the heart-beats is just as important a factor in the production of the sound.

Influence of Blood Pressure.—The average systolic blood pressure among those presenting a third sound was 135 and the average diastolic 70; among those without the sound it was 130 and 70 respectively. Hence the presence or absence of a third sound appears to be independent of the blood pressure.

Means of Intensifying the Third Sound.—Thayer (1909) described various methods by which the third sound could be intensified. Raising the arms or legs, pressure on the abdomen, turning the subject on to the left side, and the production of tachycardia were suggestions he made. I found it possible to carry out only the last two as a routine in my cases, and there was no doubt that in the vast majority the sound was exaggerated in the left lateral position. The effects of tachycardia have been noted above.

The Significance of Type I Triple Rhythm

It is evident that an audible third sound at the apex beat, with the subject recumbent, is a common finding in health below middle age. It is not surprising, therefore, that it should happen to be present sometimes in a heart that is diseased, and its occurrence in such circumstances can surely be of no help to the clinician either in making a diagnosis or in forming a prognosis. On the other hand, it appears that a third sound, clearly and constantly heard in the erect position, is a rarity in a healthy heart and calls for the most careful investigation and consideration before being dismissed as of no significance. It may be that it usually is of some significance, and the louder the sound the more likely it is to be so. Even in the recumbent position a very loud third sound—that is, one as loud as or louder than either of the other two—appears to be unusual in men over 40, though not so uncommon in the young.

This influence of position as a means of distinction between a third sound in a healthy heart and in one that is diseased has already been remarked upon by Evans (1943). He also considered that in the presence of cardiac disease a third sound was maximal in the mitral area itself or external to it, whereas in the normal heart it was maximal internal to the mitral area. Since the third sound in the subjects reported in the present paper was invariably maximal at the apex beat I cannot agree that its presence in the mitral area has any significance.

White (1928) stated that "gallop" rhythm, in which term he included protodiastolic gallop resulting from a third sound, was always a sign of considerable gravity in civil life; and that during the 1914–18 war, when soldiers with effort syndrome were gathered together, a combination of pronounced tachycardia and a loud third heart sound occasioned a minimization of the importance of gallop rhythm widely at variance with the appreciation of its significance in civilian practice. In the most recent edition of his book on heart disease (White, 1944) he asserts that protodiastolic "gallop" is more serious than presystolic. Now, among the present series of healthy males it was observed that what was usually required for a so-called protodiastolic gallop to be heard was an individual with both a third sound and a pulse rate of over 100. Furthermore, such a rhythm could be produced in many other subjects with a third sound by simply inducing a tachycardia by exercise. There was no reason to suppose that any of these people were sufferers from effort syndrome or that they might be so in the future. In other words, it appears that a protodiastolic "gallop" is not always a sign of gravity. On the contrary, it is heard quite frequently in normal hearts, especially among the young. When present in the recumbent position alone in a patient with heart disease it is probable that what is of significance is not the "gallop" rhythm but the tachycardia which produces it.

In certain of these men a type I "gallop" was present with a pulse rate of 90; in one it was heard with a rate of only 84. No doubt this production of a so-called "gallop" cadence with the slower pulse rate occurs when there is a longer interval than usual between the second and third sounds.

The Distinction between Type I Triple Rhythm and a Split Second Sound

It will be seen that no use is made of the term "reduplication," or, more correctly, "duplication." A heart sound is never duplicated. Either it is split into its normal components or an extra sound is present. The application of the term "reduplication" to both these phenomena, as usually happens, leads only to confusion.

Distinctions between a split second sound and an audible third sound are as follows: (i) the former is nearly always most obvious in the pulmonary area, while the latter has been found to be always maximal in the lower part of the praecordium—in my experience at the apex beat itself, whether the heart be normal or abnormal; (ii) splitting of the second sound is maximal on full expiration and, as I have found, on full inspiration; at both of which times, but especially the latter, a third sound is usually absent; but, what is most important, the cadence produced by a third heart sound is so characteristic that it should be impossible for anyone familiar with it to mistake the typical "lup-*dup*ty" rhythm for a splitting of the second. Subjects in whom an audible third sound extends sufficiently high or a split sound sufficiently low show the two phenomena occurring in the same situation, the third sound clearly following the second component of the split sound. The cadence thus produced may be described as "lup-*brup*ty."

Finally it is hoped that the time may not be far off when the standard textbooks devote more space to this and other forms of triple rhythm so that students may know what to expect and what not to expect from a normal heart.

Summary

The frequency of type I triple rhythm due to a third heart sound among 1,360 healthy Naval recruits and personnel is emphasized. The characteristics of the third sound, the site of maximum intensity, and the influence upon it of age, posture, respiration, and pulse rate are noted.

The usual insignificance of this form of triple rhythm, as judged from these findings, is noted.

Comparison is briefly made between this form of triple rhythm and a split second sound.

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SEVERE ERYTHEMA MULTIFORME

BY

I. B. SNEDDON, M.B., Ch.B., M.R.C.P.

Honorary Physician to Skin Department, Royal Sheffield Infirmary and Hospital

Numerous papers describing cases of severe erythema multiforme have appeared in American and Continental dermatological literature. There is, however, a scarcity of reports in British journals, the most recent being that of Low and Davies in 1938. The comparative frequency of the syndrome is considered justification for the following case reports. In the early stages the disease may present itself as a sudden pyrexial illness associated with stomatitis which simulates diphtheria, Vincent's angina, glandular fever, or one of the exanthemata. Therefore a knowledge of the condition is of value to clinicians who are not pure dermatologists.

According to Beaudonnet (1894) the first description of the condition is said to have been by Alibert and Bazin in 1822. It has been rediscovered on several occasions, and each discoverer has coined a new name. Thus Fiessinger and Rendu (1917) called it "ectodermose erosive pluriorificielle," Stevens and Johnson (1922) "a new eruptive fever with stomatitis and ophthalmia," and Baader (1925) "dermatostomatitis." Lever (1944) surveyed the literature very fully and concluded that, on the evidence presented, the cases described under the above three names were all the same condition—erythema multiforme. He also suggested that some of the published cases of acute pemphigus and some instances of human foot-and-mouth disease in which laboratory confirmation of the diagnosis was not obtained were also examples of severe erythema multiforme.

I have seen and treated nine cases of severe erythema multiforme in the last four years—one in a child, seven in young adults, and one in a woman of 55. It is therefore not a great rarity. The following cases are described as illustrative of the disease.

Case 1

A single woman aged 25 was seen on Sept. 3, 1946, complaining of severe pruritus ani and vulvae of one month's duration. She had no past history of skin or allergic disease and her only previous illnesses had been nephritis when 6, and anaemia, which had responded to iron therapy, when 21.

On examination the skin around the anus and vulva was sodden and excoriated, but no underlying cause was found. She was treated with a kaolin lotion containing 1% phenol and a dose of 100 *r* of superficial *x* rays to the affected areas. Phenobarbitone was given, 1/2 gr. (32 mg.) in the morning and 1 gr. (65 mg.) at night. The symptoms improved on this regime, and when she was seen again on Sept. 17 the phenobarbitone was discontinued and another dose of *x* rays given. On Sept. 23 the pruritus vulvae became more intense and the vagina became sore, causing discomfort on micturition. The following day ulcers appeared in the mouth and on the lips; she became feverish and felt ill with headache, backache, and malaise. Towards the end of the day a generalized eruption appeared on the trunk and limbs. On Sept. 25 her temperature rose to 104° F. (40° C.), the eruption became worse, and a bilateral conjunctivitis started. She was therefore admitted to hospital.

On admission her temperature was 102° F. (38.9° C.), pulse 88, respirations 20. Her eyelids were stuck together by a glutinous mucopurulent exudate, her face was swollen and unrecognizable, the whole of the inside of her mouth was covered with a grey sodden pseudo-membrane, and her lips were swollen and crusted. A diffuse eruption consisting of purplish red papules 0.5 to 1 cm. in diameter was present on the trunk, but on the limbs it was frankly bullous. The bullae arose in the centre of papules, and none appeared on normal skin. Both palms and soles showed erythematous macules, with a few flaccid bullae on the tips of fingers and toes. The face and scalp were not involved. Nicolsky's sign was not present. There was a profuse vaginal discharge and the vulva and vagina showed shallow ulceration. The anus appeared normal. There was no enlargement of lymphatic glands, liver, or spleen, and no abnormality was found in the cardiovascular, respiratory, and nervous systems.

During the next four days her fever continued and a number of the bullous lesions became secondarily infected. Micturition was impossible without the help of warm vaginal douches. On the fifth day after admission her temperature returned to normal, her general condition improved, and the necrotic mucous membrane in the mouth began to separate. A few fresh bullae were still appearing on her legs, but most of the papular eruption on the trunk had faded and the conjunctivitis showed improvement. During the next week all the lesions improved rapidly, the ulceration of the lips being the most troublesome and the slowest to heal. She could now pass water without difficulty. On Nov. 15, 21 days after admission, her mouth and lips were normal and all that remained of the skin eruption was faint erythematous staining and slight desquamation. The conjunctivitis had recovered completely and she had no recurrence of the pruritus ani and vulvae.

On Oct. 26 the leucocytes numbered 11,000 per c.mm. (polymorphonuclears, 72%; lymphocytes, 22%; monocytes, 2%; eosinophils, 4%). Blood culture was sterile. Culture from vaginal discharge gave a growth of β haemolytic streptococcus and diphtheroids. Culture from the mouth gave a growth of β haemolytic streptococcus and *Staphylococcus albus* (coagulase-positive). On Oct. 29 the leucocytes numbered 10,200; on Nov. 5 the haemoglobin was 72%, and the erythrocytes 3,640,000 per c.mm. A skiagram of the chest revealed no abnormality. The Mantoux test was 1:10,000 negative, 1:1,000 positive. Treatment consisted of local symptomatic measures, and after the result of the bacteriological examination 1,200,000 units of penicillin were given intramuscularly from Oct. 28 to Nov. 2.

Case 2

A boy aged 9 was admitted to an isolation hospital on Oct. 14, 1946. For a month prior to admission he had been run down and "nervy." Four days before admission his eyes became inflamed and swollen, and on the same day he bit his lower lip. The lesion on the lip became sore, and ulceration spread to the inside of his mouth. Two days later a few pink spots appeared on his upper chest, his eyes became more inflamed, and blisters were seen inside his mouth. His previous history contained no relevant facts.

On admission his temperature was 100° F. (37.8° C.) and both eyes were closed by swelling and sticky mucopurulent

discharge. The conjunctivae were deeply injected. A purulent discharge ran from his nostrils, which were crusted. His lips were swollen and crusted, the inside of the mouth was covered with a pseudo-membranous exudate, and a mixture of saliva and blood drooled from his lips. Slight enlargement of the cervical glands was present. There was a blotchy erythema on the face, discrete red macules covered the palms and soles, and a purplish maculo-papular eruption was present over the trunk and limbs. A few of the papules on the limbs showed a small central vesicle, but no bullae were seen. No abnormality was found in the heart, lungs, or abdomen. His condition remained unchanged for two days, but then his temperature fell and his general condition began to improve, though at that time a urethral discharge was noticed for the first time. During the next week all the lesions healed except the mouth, which showed shallow ulceration for a few days longer. He was discharged cured 26 days after admission.

On Oct. 16 the leucocytes numbered 10,000 per c.mm., the differential count being within normal limits. Culture from eyes, nose, and mouth showed mixed staphylococci and streptococci, and was negative for *C. diphtheriae* and Vincent's organisms. Culture of the necrotic mucous membrane from the mouth gave a growth of *Aspergillus niger*.

Treatment consisted of penicillin drops to the eyes, penicillin spray to the mouth, and 40,000 units of penicillin intramuscularly four-hourly from Oct. 14 to 20. In addition he was given 40,000 units of antidiphtheritic serum on admission and 10 g. of sulphamezathine in the first 24 hours.

Case 3

An able seaman aged 22 was admitted to a Naval hospital on March 28, 1942. He complained of soreness of the eyes, ulceration of the mouth, and a rash on the arms and legs which had been present for two days. There was no history of drug-taking or of previous skin disease.

Examination on admission revealed severe purulent bilateral conjunctivitis, a grey sodden pseudo-membranous stomatitis involving the inside of the cheeks and the soft palate, and swelling and cracking of the lips. An eruption consisting of pink papules 1 cm. in diameter surmounted by small central bullae was symmetrically distributed on the limbs but did not involve the trunk or face. The spleen was just palpable; this was the only other abnormality found. His temperature was 99° to 100° F. (37.2° to 37.8° C.) for a week, and at the end of this time all the lesions were clearing up. By April 22, 24 days after admission, he had fully recovered.

The leucocyte count on admission was 6,200 per c.mm., with a normal differential count. Culture showed no constant pathogenic organism; Vincent's organisms were not found. Treatment was symptomatic only.

Case 4

An ordinary seaman aged 21 was admitted to a Naval hospital on March 22, 1943, with a history of two days' soreness of the mouth and eyes, cough, backache, and headache. There was no history of previous attacks or of drug-taking.

On admission he had a temperature of 103.3° F. (39.6° C.). Acute mucopurulent conjunctivitis affected both eyes. The whole of the cheeks were covered with a greyish sloughing mucosa, although there was no ulceration or bleeding. Three days after admission he developed a urethral discharge with excoriation of the glans penis around the meatus. On that day also he developed an eruption of large pink papules on the buttocks, thighs, and over the elbows. A few of these papules later developed central bullae. His condition remained much the same for the first week and then began to improve. He had completely recovered on April 20, four weeks after admission.

Culture from the conjunctiva showed no organisms. A throat swab produced a pure growth of *Staph. aureus* but no Vincent's organisms. The urine showed no abnormality. The leucocytes on admission were 23,500, but had fallen a week later to 11,600. The blood Wassermann and Kahn reactions were negative. A total of 29 g. of sulphathiazole and 24 g. of sulphapyridine was given from March 22 to 31, but without any appreciable benefit. Other treatment consisted of lotion and mouth-washes only.

Case 5

A lieutenant, R.N.V.R., aged 32 was admitted to a Naval hospital on Oct. 24, 1943. Four days previously he had had a slight cold in the nose and the inside of his mouth had become sore. This condition had rapidly progressed, and on admission he had gross stomatitis with desquamation of the epithelium over the palate and grey sloughing mucosa over the tonsils. The day after admission he developed a temperature of 101° F. (38.3° C.) and a leucocyte count was 13,800 per c.mm. Sulphamezathine was given, but was discontinued after he had had 13 g., as a red papular eruption appeared on the arms and buttocks. This at first was considered to be a sign of intolerance, but was afterwards recognized as erythema multiforme.

On Oct. 27 an acute conjunctivitis developed and his temperature rose to 103° F. (39.4° C.). The inside of his mouth was covered with sloughing epithelium and the lips were crusted, fissured, and bleeding. His temperature remained swinging between 99° and 103° F. (37.2° and 39.4° C.), and on Nov. 2 he developed a urethral discharge, excoriation of the glans penis, and a pyodermia of the scrotum. The skin eruption was still very evident, and consisted of purplish-red papules, tender to the touch and hot, and confined to the buttocks and extensor surfaces of the arms and forearms. No bullae were seen. Two weeks after admission his temperature settled and all the lesions were by now healing. He was completely well five weeks after the onset. He gave a history of a similar attack in December, 1942, which had lasted two months.

The leucocytes rose to 15,200 at the peak of his illness. The differential count showed 74% polymorphs. The urine was normal, and sterile on culture. A swab from his conjunctiva produced no growth. A swab from the mouth on several occasions gave a growth of *Str. viridans*. There were no Vincent's organisms. Blood culture was negative. Apart from the small dose of sulphamezathine, treatment consisted of local symptomatic measures.

Case 6

A woman aged 55 was seen on Dec. 3, 1946, complaining of the sudden onset two days previously of soreness of the mouth, throat, anus, and vagina, and a skin eruption affecting the neck, trunk, and limbs. Although feeling rather tired for a month previously she had been in good health, and had had no similar eruptions in the past. She admitted taking aspirin occasionally.

On examination she had a temperature of 102° F. (38.9° C.). An acute stomatitis with swelling and cracking of the lips was present. She also had rhinitis with excoriation of the nares, ulceration affecting the vulva and anus, and a profuse purplish maculo-papular eruption on the trunk, limbs, palms, and soles. A few papules had central vesicles. The conjunctivae were not affected. Her condition remained unchanged for seven days and then suddenly improved. Her skin desquamated severely during the recovery phase, but she was normal 21 days after the onset.

The Course of Severe Erythema Multiforme

Severe erythema multiforme is an affection of children and young adults. The onset of the disease is acute, with a temperature up to 104° F. (40° C.), headaches, chill, malaise, and backache. Mucous membrane lesions are the first to appear, and the mouth is usually the earliest orifice to be affected. The primary lesion in the mouth is a flaccid bulla, but it is usually the later picture of extensive stomatitis, with pseudo-membrane which leaves bleeding erosions when it is removed, that is seen. Swelling of the face and the formation of haemorrhagic crusts on the lips add to the patient's misery. Tracheo-bronchial involvement, with the complications of oedema of the larynx and bronchopneumonia, has been described, but was not seen in this series of cases. Bilateral conjunctivitis occurs in the majority of cases, and is often associated with a rhinitis causing crusting of the nares and epistaxis. Involvement of the genitalia is common and takes the form of balanitis with ulceration of the glans penis, urethritis, and in women ulceration of the vulva and vagina.

Within two to three days of the onset a skin eruption appears. A few cases in which the disease has been confined to the mucosae with absence of cutaneous lesions have been described, but in all the above patients a skin eruption occurred. The eruption usually begins on the extremities, and affects particularly the palms and soles, but at the height of the disease it may be generalized. The eruption is composed at first of macules and papules, but in the severe cases the lesions become bullous. Classical target and erythema iris lesions were uncommon in this series of cases. The disease remains at its height for a week and then the lesions begin to improve and the temperature falls. The conjunctivitis and the skin eruption disappear first and the ulceration of the mouth is usually the last to heal. The total duration of illness is three to six weeks. Unlike the common type of erythema multiforme, relapse is unusual, and according to Lever (1944) if subsequent attacks do occur they are milder. Despite the acute and alarming symptoms the mortality of the disease is low, only four fatal cases having been described in the literature. Complete recovery is recorded in the present cases, but this is by no means the rule, as many American authors have described ocular changes which have led to partial or total loss of vision.

The varieties of ocular inflammation have been well described by Bailey (1931) and Duke-Elder (1938). Duke-Elder describes three degrees of severity—the catarrhal, the purulent, and the pseudo-membranous. The pseudo-membranous conjunctivitis may heal without scarring, but can persist for years, causing conjunctival shrinkage, adhesions between the bulbar and palpebral conjunctivae and corneal opacities. In this stage it is indistinguishable from pemphigus vulgaris affecting the conjunctiva.

Differential Diagnosis

In the early stages of the illness many diseases may be simulated, including Vincent's angina, glandular fever, diphtheria, agranulocytosis, and the common upper respiratory infections. When the skin eruption has made its appearance the field is narrowed and only four conditions have to be considered in the differential diagnosis: drug eruptions, pemphigus vulgaris, dermatitis herpetiformis, and foot-and-mouth disease.

Bullous eruptions may be produced by several drugs, but they rarely affect the mucous membranes and do not usually present this clinical picture, although Moss and Long (1942) described two cases clinically identical with the present ones said to be caused by phenobarbitone. Raffetto and Nichols (1942) and Greenberg and Messer (1943) have also described a similar condition due to sulphadiazine. However, evidence that the drugs were the causal agents is scanty and they may well have been coincidental.

Pemphigus vulgaris is a disease of the elderly; its course is never as acute as erythema multiforme, and dramatic improvement at the end of a week is most unlikely. The eruption of dermatitis herpetiformis may simulate erythema multiforme; but general symptoms are slight, the conjunctivae are not affected, and its course is a chronic one. Human foot-and-mouth disease is a very rare condition, and although descriptions resemble those of erythema multiforme in that conjunctivitis, rhinitis, and balanitis may be present, the skin lesions are confined to the area around the nails of the hands and feet. Laboratory proof of the presence of the virus is now possible by the Waldmann and Pape method.

Aetiology and Treatment

The investigations in the present series of cases have given no assistance in the search for the aetiology of severe erythema multiforme. Leucocyte counts were within normal limits or slightly raised. Differential counts showed no significant abnormality. Blood cultures were sterile. Bacteriological investigation of the secretions from the mouth and conjunctiva gave growths of only the common pyogenic organisms, and these varied from patient to patient and even from site to site in the same patient. *Aspergillus niger* was cultured in Case 2, but this is considered to be non-pathogenic. Only one of the patients had taken a drug—namely, phenobarbitone—before the illness started. Therefore drugs can be excluded as the main cause.

Most patients complained of feeling off-colour for some weeks before the onset, but no evidence of underlying sepsis or other infection was found. In its predilection for children and young adults, its self-limited course unaffected by therapy, and its benign outcome, the condition bears a resemblance to another disease of obscure origin—glandular fever.

After seeing this series of cases one has the impression of dealing with a definite entity and not just a variety of the erythema multiforme as described by Hebra, and it is not surprising that it has so often been described as a new disease. This is in accordance with French opinions, and the same view is also held by several American authors. However, until there is a more definite lead it is useless to speculate on the probable causal agent.

Treatment.—The disease is self-limiting and treatment has little effect on it. Rapid recovery of the patients after a week's illness has led to claims being made by Weisberg and Rosen (1946) for the beneficial effect of nicotinamide and by Robinson (1945) for the effect of penicillin. However, although it appears to be reasonable to give penicillin for the control of secondary infection there is little evidence that treatment shortens the duration of the illness, which usually improves spontaneously at the end of a week.

Summary

A series of cases of severe erythema multiforme has been described.

The course of the disease, its differential diagnosis, and its treatment have been discussed.

Investigations have failed to throw light on the aetiology of the illness, but it is considered to be a definite entity.

I should like to thank the medical superintendent of the Derby Isolation Hospital for permission to publish the report of Case 2 and the Medical Director-General of the Navy for permission to publish Cases 3, 4, and 5.

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A circular from the Department of Health for Scotland points out that though the majority of old people like to live in their own homes local authorities should help those who are unable to do so. Authorities have the power to provide domestic help in the home if necessary, and to build residential homes for the elderly who are unable to live independently. Not more than about 30 to 40 people should be accommodated in one home, and such institutions should be brightly decorated and comfortably furnished.

Medical Memoranda

Intravenous Atropine for Peptic Ulcer

I present here a case of ulcer of the lesser curvature of the stomach in which a crater the size of a cherry diminished to one-tenth of its original dimensions after four weeks' treatment and ceased to be visible radiologically after six and a half weeks.

An ex-Serviceman aged 41 was discharged from the Army because of hyperthyroidism. In July, 1946, for two weeks he had pains in the epigastrium after meals. In October and November, 1946, the pain returned and was more severe. He was admitted to hospital on Nov. 18. The thyroid gland was slightly enlarged and a little hard on palpation. The basal metabolic rate was +11%, and there were no cardiac or ocular signs. A fractional test meal showed fasting hypersecretion with acidity 30/20 and 55/45;

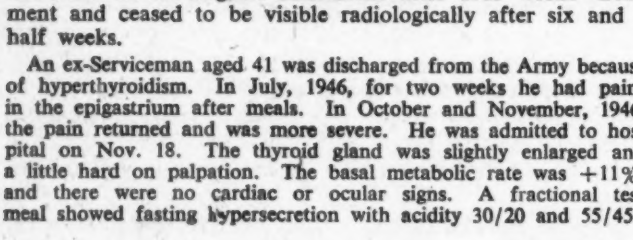

FIG. 1

the highest acidity after the introduction of 100 ml. of 5% alcohol was 60/45 and 65/55. Stool examination for occult bleeding (benzidine test) was positive. A barium meal showed the presence of a niche the size of a cherry on the lesser curvature with regional gastric spasm opposite (see Fig. 1).

Under treatment the gastric complaints disappeared completely in 10 to 14 days. On the ninth day the benzidine test became negative. On Dec. 16 the ulcer niche on the lesser curvature diminished to one-tenth of its original size and on Jan. 4, 1947 (after six and a half weeks), it ceased to be visible (Fig. 2). The highest acidity shown by fractional test meal before leaving the hospital was 50/40.

The treatment consisted of: (1) slightly restricted mixed diet; (2) 1 oz. (28 ml.) of cod-liver oil before breakfast; (3) 1 dr. (4 g.) magnesium trisilicate three times daily after meals; (4) radiant heat

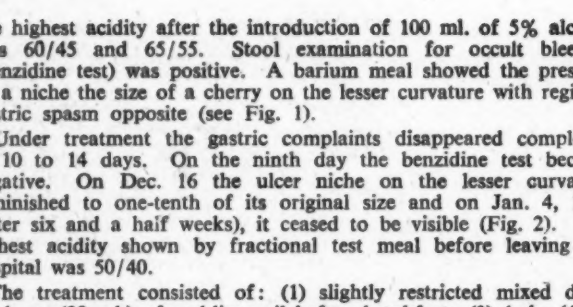

FIG. 2.—Ulcer niche on the lesser curvature invisible.

twice daily for 20 minutes on the upper abdomen: (5) daily intravenous injections of 1/60 gr. (1 mg.) atropine sulphate plus 10 ml. of 10% calcium gluconate. After twenty-eight daily intravenous injections of atropine and calcium they were continued every third day, so that in all the patient received 35 injections.

COMMENT

The diet in this case was not very strict and the alkalinization was not very massive. From my clinical experience it appears that cod-liver oil before breakfast favours rapid healing of a peptic ulcer, but I ascribe a great part of the therapeutic success to the intravenous injections of atropine. For many years the subcutaneous injections of 1/60 gr. (1 mg.) of atropine formed an integral part of my treatment. However, I met resistant cases in which diet, alkalis, bismuth, cod-liver oil, and subcutaneous atropine could not bring about a remission, and operation could not be performed for various reasons. I then tried atropine 1/60 gr. in 10 ml. sodium bromide or calcium gluconate (10%) intravenously. The results surpassed my expectations. I admit that it is difficult to imagine, if one does not see for oneself, how different is the therapeutic effect of atropine injected subcutaneously and intravenously. The case described is an exact replica of cases published by me in *La Presse Médicale* in 1937. In my view intravenous injections of atropine sulphate in sodium bromide or calcium gluconate should form an integral part of the conservative treatment of peptic ulcer.

ANASTASE LANDAU, M.D.,
Consulting Physician,
Paderewski Polish Hospital, Edinburgh.

REFERENCE

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True Knot of the Cord giving rise to Foetal Distress

True knots of the cord are fairly commonly seen at delivery, but are usually without effect on the foetus. The following case is of interest in that tightening of the knot in labour gave rise to an unexplained foetal distress in the first stage of labour.

CASE HISTORY

A primigravida at term was admitted to hospital on Jan. 18, 1947, as a case of foetal distress in the first stage of labour, with the cervical os dilated to admit only one finger. The patient had had a show at 3 p.m. the previous day, which was followed shortly afterwards by feeble and irregularly timed contractions. The vertex was presenting, engaged in the left occipito-anterior position, the foetal heart rate was 136, and the maternal pulse 64. Vaginal examination showed the head in the mid-cavity, and the cervix not dilated. No liquor amnii was draining. Labour continued throughout the night, with increasing uterine contractions, and at 9.15 a.m. on the 19th thick greenish-brown-stained liquor was passed. The foetal heart was found to be beating irregularly at 146, but subsequently fluctuated between 90 and 150. The cervix was dilated to the size of only one finger and no prolapse of the cord was palpable. Admission to hospital was requested, and this was arranged.

The progress of labour was confirmed, but no cause could be found for the apparent foetal distress. The foetal heart was observed for a while; while beating irregularly in rhythm, it remained fairly constant at about 146 beats a minute, and was not unduly influenced by pains. Morphine 1/4 gr. (16 mg.) was ordered and the labour allowed to continue without interference. The foetal heart rate varied between 120 and 148, but became more regular in rhythm during the afternoon, although thick meconium-stained liquor continued to be passed at intervals. At 4.45 p.m. the cervix was dilated to four fingers, and at 6 p.m. was fully dilated. Delivery of a mature infant weighing 5 lb. 7 oz. (2.47 kg.) followed shortly afterwards. The cord was not encircling the neck, which fact probably saved the baby's life.

The baby at birth was limp blue-asphyxiated, and covered with meconium-stained liquor. The pharynx was cleared, and the infant responded slowly to efforts at resuscitation but ultimately became of a good colour. After delivery a true knot (tightly tied) was discovered about half-way along the cord, which was 20 in. (50 cm.) in length. The placenta was normal. The neonatal period passed uneventfully, the baby subsequently being discharged fit and well.

I am indebted to the medical superintendent for permission to publish this case.

JOHN PRICE,
Obstetrical Medical Officer,
Lambeth Hospital.

Reviews

PHYSIOLOGICAL INFERTILITY

Adolescent Sterility. A Study in the Comparative Physiology of the Infecundity of the Adolescent Organism in Mammals and Man. By M. F. Ashley Montagu. (Pp. 148. $3.50.) Illinois: Charles C. Thomas. 1946.

It is now generally recognized that the female of the human and other species is not always fertile at, and immediately after, puberty, the capacity for reproduction usually being a later development. Moreover, when conception occurs in the young adolescent incomplete development of the reproductive function is manifested by a high foetal death rate and an increased maternal risk. Prof. Montagu in this book attempts to prove and explain the existence of a period of physiological infertility and reproductive inefficiency between puberty and maturity. He takes as examples the mouse, cow, rhesus monkey, chimpanzee, and the different races of man, referring to both animal breeding experiments and many and varied observations made on civilized and uncivilized peoples. He accepts and elaborates the now fairly well established explanation that the low fertility of the young female is mainly due to the absence or infrequency of ovulation for an appreciable time after overt expressions of puberty such as menstruation and oestrus appear, and he emphasizes that full endocrine activity, or the sensitivity of the genital organs to hormones, develops comparatively late. He draws attention to the many exceptions to the general rule, and also points out that the interval between puberty and maturity varies considerably in different races, being influenced possibly by environmental factors.

An objection to the title of the book is that the word "sterility" implies an absolute condition, whereas "the adolescent sterility interval is not one during which conception is impossible." The terminology throughout, though often strictly correct, does not always conform to common usage, and the use of the term "nubility" to represent "the bridge between puberty and maturity" may confuse rather than clarify the picture. It is disappointing to find that the author barely mentions the possibility of a similar phase of low fertility in the male. Without presenting anything new, Prof. Montagu has brought together experimental and statistical evidence in a book that will be welcomed by all those interested in the physiology of the female reproductive function and in its practical applications in genetics and social science. As well as a large bibliography the book contains tables of age-fertility rates, menarche-conception intervals, and so on, and includes references to many recorded cases of pregnancy occurring at exceptionally early and late ages. It is indeed a compact and orderly collection of a large mass of data concerning a subject which, though limited in scope, should interest a large number of readers.

T. N. A. JEFFCOATE.

THE COLPOSCOPE

Entstehung und Früherfassung des Portiokarzinoms. By Hansjakob Wespi. (Pp. 134; 94 illustrations. 18 francs.) Basle: Benno Schwabe and Co. 1946.

In 1924 Hinselmann published an article in the Veit-Stoeckel *Handbuch der Gynäkologie* (Weisbaden) on the use of the colposcope in the diagnosis of early carcinoma of the cervix. The publication received little attention in Britain, though the technique clearly offered opportunities for a new method of approach to the problem of the aetiology of malignant disease. The value of the technique derives from the fact that the colposcope enables the site to be inspected under high magnification with relatively little inconvenience to the patient, for, if repeated examinations of patients are made and accurate records kept, pre-cancerous changes should be detected in a certain number of cases.

In Switzerland Hansjakob Wespi has been working with the colposcope and has now published an account of the results of colposcopic examination of nearly 4,000 patients. The material is condensed and the book is full of detailed information. He includes an excellent review of the literature, and gives a clear and concise summary of Hinselmann's system of classification. We must praise particularly the series of photomicrographs, which are of fundamental importance to anyone starting to work with the technique. Dr. Wespi quite correctly pays great attention to the question of the causation of malignant disease in the light of his experience, and he discusses the obscure questions of the origin of the malignant cells and of unicentral or multicentral origin. One of his most important conclusions is his confirming the existence of a long latent period, which has been noticed previously by Schiller and by Smith and Pemberton particularly. The book is worthy of very careful study, for it opens up both theoretical and practical possibilities.

WILFRED SHAW.

CHEST SKIAGRAPHY

Principles in Roentgen Study of the Chest. By William Snow, M.D. (Pp. 414; illustrated. $10.00.) Springfield: Charles C. Thomas. 1946.

Dr. William Snow's book has an unusual arrangement in that it is written round a number of speculative theories, advanced in an early chapter, entitled "The Role of the Bronchial Tree," about the pathology of diseases of the lungs. He begins by stating that an understanding of the *x*-ray picture of lung disease depends on a knowledge of "important mechanisms . . . based on the fact that bronchial spasms, disease of the bronchi, secretions, and foreign materials may induce obstructive emphysema, atelectasis, and oedema. The lung circulation is closely tied up with these reactions." This may sometimes be true, but he then discerns these mechanisms in the *x*-ray pattern of almost every lung condition—often with good reason, but sometimes without any experimental or clinical proof. Discounting this lack of critical judgment on unproved theories, the reader will find much of interest in the book even if he disagrees with many of the author's opinions. There are over 500 skiagraphs. Most of them satisfactorily illustrate what is intended, and their number and variety are ample; many, however, are of poor quality because of transposition back to the negative.

S. COCHRANE SHANKS.

KIDNEY DISEASE

Renal Diseases. By E. T. Bell, M.D. (Pp. 434; 115 engravings and 4 coloured plates. 35s.) London: Henry Kimpton.

Prof. E. T. Bell, of Minneapolis, is well known as a renal histologist, and students of kidney disease will therefore turn to his book with considerable interest. The best sections of the book are those on histology and morbid anatomy. They are well written and the illustrations are carefully chosen and clearly reproduced. Discussing nephrosis the author, writing with conviction, comes down heavily against those who would regard it as a separate disease.

He claims, however, to deal not only with the histology but also with the clinical and physiological aspects of kidney disease, and on these subjects is usually unconvincing, often unscientific, and sometimes frankly misleading. A sentence, distinguished neither for its clarity nor for its accuracy, will serve as an illustration. Referring to cerebral symptoms in acute nephritis the author states: "They are usually due to uraemia but sometimes they occur in the absence of renal insufficiency, and in this type of case the symptoms are probably caused by increased intracranial pressure from an excess of subarachnoid fluid, since the spinal fluid is under increased pressure and removal of fluid often brings relief." Does Dr. Bell really believe that the symptoms are due to uraemia when uraemia is present and due to something else in its absence? Statements of this type are unfortunately only too frequent. In different sections of the book the author ascribes urine of low specific gravity to rapid (p. 49) and to slow (p. 405) glomerular filtration, claiming in the first instance that the tubule has not time to concentrate and in the second that there is more time for the back-diffusion of urea. In a discussion on the relation between oedema and renal lesions in diabetes it is clear that there is no distinction in the clinical records between oedema of renal type and oedema due to cardiac failure. Conclusions based on such data are useless. Phrases such as "the blood-pressure was recorded in 33 of our 51 cases," which occur frequently, do nothing to reassure the reader that the clinical observations have been carefully compiled.

We are bound to add that the book has two other great defects. The first is that, as in so many American works, the author bases his conclusions on the maximum number of cases, however incompletely recorded, whereas the intimate study of twenty well-documented instances would often yield information of far greater value. The second fault is that the author appears to be ignorant of important British work on his subject. A book on kidney disease which knows neither Ellis on the "Natural History" nor Wilson on the "Vicious Circle" is, to the British reader, out of date before it is published. The expert, who will read with discrimination, seeking only histological fact and bibliographical information, cannot afford to ignore this book. May it never fall into the hands of the beginner.

ROBERT PLATT.

CHARMS THAT SOOTHE

Music in Medicine. By Sidney Licht, M.D. (Pp. 132. $3.00.) Massachusetts: New England Conservatory of Music, Boston 15.

The importance of the arts in the treatment of disease has been the subject of several expositions in recent years. This book deals fully with the use of music in medicine. The following chapter headings indicate its scope: History of Music in Medicine, Philosophy and Psychology of Music, Music as Occupational Therapy, Psychiatry and Music, Background Music, Mealtime Music, and Music in Bed.

The book contains some striking quotations and useful references, but also much irrelevant material. However, there are some amusing passages. Discussing music in operating theatres and dentists' chairs, Dr. Licht writes: "There are times during an operation when delicate maneuvers become trying and the wrong music or increased volume might lead to exasperation. . . . For many people drilling is a frightful experience. Some dentists have advocated the playing of music at a loud level during this procedure;" and of the treatment of arteriosclerotic psychosis: "Oldtime favourites played softly for several periods daily is indicated. Obviously, where specific musical numbers are requested, they should be played;" while "Alcoholics like to join in group-singing, especially if the group is made up exclusively of fellow inebriates." He recommends, too, that "live musicians should be used as often as possible." Whether such observations are worth the export of three dollars to the hard currency area is a matter of opinion.

D. V. HUBBLE.

Having no lexicographers ready to take on the task, we in this country depend on the United States for comprehensive medical dictionaries. Our debt to American colleagues is great and must be acknowledged: Gould, Dorland, and Stedman, and their colleagues and successors, have earned the gratitude of the whole English-speaking profession. The latest of the long series is a reprint of the eighteenth edition of the *American Pocket Medical Dictionary*, still bearing the name of Dr. W. A. NEWMAN DORLAND as editor; it is published by W. B. Saunders Company at 10s., and is also obtainable with thumb index for 12s. 6d. In this edition the terminology has so far as possible been made to conform to that of the *Standard Nomenclature of Diseases and Operations* published by the American Medical Association. There are 1,062 pages, printed for the most part in single column, giving the pronunciation and brief definitions of all the principal terms used in medicine, surgery, dentistry, veterinary medicine, nursing, and kindred sciences.

With the February number, *Mother and Child* appears in a new and enlarged format. A leading article comments on a recent circular from the Ministry of Health concerning the weekly allowance for younger children as follows: "In Circular 221/46 of the Ministry of Health there are stated a number of reasons why, in the opinion of the Minister, local authorities should take into account the payment of these family allowances and the recent increase in the rate of old age pensions when assessing needs in their various assisted services schemes. It has been said by a legal authority that in cases where many alternative defences are pleaded, there is frequently no defence worth pleading at all. It occurs to us, on a study of this circular, that the Minister is in the same position. After saying it would probably be a breach of the law for local authorities to disregard family allowances, the circular continues, at very considerable length, to state many possible reasons for disregarding such allowances. If in fact to disregard their effect is illegal, why not say so? Can it be that the Minister has qualms of conscience with regard to this?" The price of the journal (which appears monthly) is 1s.

BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

Nutritional Disorders of the Nervous System. By J. D. Spillane, M.D., M.R.C.P. (Pp. 280. 20s.) Edinburgh: E. and S. Livingstone. 1947.

Includes accounts of vitamin-B-deficiency disorders, subacute combined degeneration of the cord, and nutritional neuropathy in wartime.

The Childbearing Years. By C. Scott Russell, M.A., F.R.C.S.Ed., M.R.C.O.G. (Pp. 88. 7s. 6d.) Oxford: Blackwell. 1947.

A book on sexual physiology, child-bearing, sterility, and contraception for the lay reader; with many illustrations.

The Practice of Mental Nursing. By May Houliston, R.G.N., R.M.N., R.F.N. (Pp. 164. 7s. 6d.) Edinburgh: E. and S. Livingstone. 1947.

An introduction to mental nursing for junior student nurses.

The Psychology of the Unwanted Child. By Agatha H. Bowley, Ph.D. (Pp. 112. 6s.) Edinburgh: E. and S. Livingstone. 1947.

Includes a study of children in substitute homes, causes and effects of emotional rejection, and therapeutic methods.

A Handbook on Diseases of Children. By Bruce Williamson, M.D., F.R.C.P. 5th ed. (Pp. 408. 15s. 6d.) Edinburgh: E. and S. Livingstone. 1947.

This edition includes new material on penicillin.

Libido and Delusion. By Louis S. London, M.D. 2nd ed. (Pp. 259. $3.50.) Washington, D.C.: Mental Therapy Publications. 1947.

Discusses various theories of the libido, with reference to a number of cases, the pathogenesis of delusions, and analysis of schizophrenia.

Suicide and the Meaning of Life. By Margarethe von Andics. (Pp. 219. 8s. 6d.) London: William Hodge. 1947.

An investigation into the meaning certain individuals attach to their lives, elucidated by personal questioning.

Le Déséquilibre Psychique. By Dr. J. Borel. (Pp. 378. 360 francs.) Paris: Presses Universitaires de France. 1947.

An account of mental imbalance, psychoses, and delinquency, with clinical details.

Clinical Examination of the Nervous System. By G. H. Monrad-Krohn, M.D., F.R.C.P. 8th ed. (Pp. 380. 16s.) London: H. K. Lewis. 1947.

The chapter on angiography with "perabrodil" has been enlarged and illustrations have been added.

Venereal Disease. By L. Martindale, C.B.E., M.D., F.R.C.O.G. (Pp. 31. 2s.) London: The Association for Moral and Social Hygiene. 1947.

A simple history and description of venereal diseases with emphasis on their prevention by an appeal to morality.

Physician's Handbook. By John Warkentin, Ph.D., M.D., and Jack D. Lange, M.S., M.D. 4th ed. (Pp. 282. $1.50.) Chicago, Illinois: University Medical Publishers. 1946.

A summary of diagnostic procedures.

Rh. Its Relation to Congenital Hemolytic Disease and to Intragroup Transfusion Reactions. By Edith L. Potter, M.D., Ph.D. (Pp. 344. £1 10s. 6d.) London: H. K. Lewis. 1947.

An account of the rhesus factor for medical practitioners, with photographs and bibliography.

The 1946 Year Book of Dermatology and Syphilology. Ed. by M. B. Sulzberger, M.D., and R. L. Baer, M.D. (Pp. 638. 21s.) London: H. K. Lewis. 1947.

The new material discusses BAL, penicillin in slow-release vehicles, antihistamine agents, and vitamin D for lupus vulgaris.

The 1946 Year Book of Industrial and Orthopedic Surgery. Ed. by Charles F. Painter, M.D. (Pp. 429. 21s.) London: H. K. Lewis. 1947.

Summarizes recent advances.

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A.M.A. CENTENARY MEETING

The centenary meeting of the American Medical Association at Atlantic City, New Jersey, from June 9 to June 13 will remain in the memory of those doctors fortunate enough to attend it as one of the most noteworthy events in their lives. The size of the meeting may be gauged by the number of medical men and women who registered—15,667. If we add those who omitted to register, foreign guests, and the wives and families of the American doctors who came from the 48 States of the U.S.A., the population of Atlantic City must have increased temporarily by at least 30,000. This was, of course, a record meeting for the A.M.A. The British visitor was astonished, and at times perhaps stunned, by the sheer impact of the size of the meeting and by the large scale of its many notable assemblies and occasions—and not least by the open-handed and open-hearted generosity with which he was welcomed both officially and privately.

The A.M.A. meeting was like a landscape painting on a large canvas. The visitor was able to see the broad sweep of American medicine, and, if the pressure of people and events prevented him from seeing all the details, what he did see satisfied him that size had not been achieved at the expense of quality. The precision of the detail was indeed remarkable, and was seen to perfection in the scientific exhibits, which used every technical device to present the results of research in such a way that the general physician could understand almost at a glance the main facts of the subject demonstrated and the conclusions to be drawn from them. The legends to the exhibits were written in large script and exact language. Diagrams, charts, graphs, maps, colour photographs, drawings, *x*-ray films, anatomical models, surgical instruments, and mounted specimens were all assembled in a logical sequence that made each exhibit a balanced postgraduate course. An expert on the subject exhibited was there to expound and explain and to answer the ceaseless questioning of men and women eager for information. Some of the exhibits will subsequently be shown at meetings in the different States, but the exhibitors were not perturbed by the fact that several of the exhibits, the result of many months of work, would be only temporary. Medicine changes, and rapidly, is the American theme. In no other country is technology at such an advanced stage of development; and American medicine is almost spendthrift with technological devices. This may have disadvantages. Technology may in some instances be looked upon as an end in itself. The technological approach may lead to short-lived enthusiasms, and the patient may at times be only dimly visible behind a barrage of apparatus. In Great Britain the string-and-sealing-wax tradition makes our approach to unsolved problems more cautious—an approach that leaves ample room for reflection. It is perhaps not fanciful to see in the bustling progress of American medicine the spirit of the frontier, eager to deal quickly with the enemy and impatient of obstacles, a spirit that is aggressive, invigorating, and productive of results.

Those who represented the British Medical Association at Atlantic City were immediately made to feel at home, as indeed were all the British guests. Newcomers to the U.S.A. soon realized that what they had heard of American hospitality was no myth. There were, of course, the formal occasions common to all such meetings, but even here the lively friendliness of Americans divested the formal of pomposity. The B.M.A. delegation was given every opportunity to see the organization of the A.M.A. from the inside. They were invited to the dinner given by the Board of Trustees to the House of Delegates and the officials of the A.M.A.; they were presented to the House of Delegates at the opening of one of its sessions and listened to the debates of this assembly, which corresponds to the Representative Body. The B.M.A. delegates were also privileged to attend a meeting of the Board of Trustees for an interchange of views on medical politics.

It may be of interest to outline briefly the structure of the A.M.A. The Board of Trustees corresponds to the Council of the B.M.A. It consists of nine members, each of whom serves for a term of five years and may, after the lapse of a year, be re-elected for a further five years. No one, therefore, can be a trustee for longer than ten years. The Board meets four times a year, and its Executive Committee meets every month. The Board gives an account of its stewardship to the annual meeting of the House of Delegates (numbering not more than 175 members), which, like our Representative Body, is the final determiner of policy. The County Medical Society, of which there are more than 2,000, is the key unit of the A.M.A. The State Society consists of its county societies. The State societies elect members to the House of Delegates, and the House elects the Board of Trustees. The work of the A.M.A. is carried out by Standing Councils and by *ad hoc* reference committees appointed by the House of Delegates. The work of the Councils is done at A.M.A. Headquarters in Chicago, each Council having a permanent secretary. There are, for example, Councils on medical education and hospitals, on industrial health, on medical services; and grouped in one division are the Council on Pharmacy and Chemistry, the Therapeutic Trials Committee, the Council on Physical Therapy, and the Council on Foods and Nutrition. There are a Bureau of Health Education and a Bureau of Investigation. The principal permanent officers are the Editor of the *Journal of the American Medical Association* and the Secretary and General Manager.

It was at a meeting of the House of Delegates that Dr. H. Guy Dain, the Chairman of Council, presented the B.M.A.'s gift to the A.M.A.—a gavel and block made from the mulberry tree that used to grow in the garden of Charles Dickens's home in Tavistock Square. The B.M.A. representatives, in company with many other foreign

guests, were honoured subsequently by being admitted as Honorary Fellows of the A.M.A. at the opening session of the meeting on June 10, an event also noteworthy for the concert given by the Philadelphia Festival Orchestra. The last item on this programme came as a pleasing surprise, for the conductor, Alexander Hilsberg, announced that it was to be the first performance of a march dedicated to the victory at Iwo Jima and composed by the President of the A.M.A., Dr. Edward L. Bortz. Later in the meeting the guests attended the President's reception and stood in the "reception line" to shake hands with many hundreds of American doctors and their wives. Before this reception a number of the guests, including the B.M.A. party, were admitted honorary members of the Alpha Omega Alpha Club at its annual dinner. It is not possible to record in detail everything of importance that happened. One other event should be mentioned, however, and that is the addresses given on Sunday, June 8, and broadcast to the nation, by the Rev. R. C. Hutchison, President of Lafayette College, Easton, Pa., by Rabbi J. L. Liebman, of Boston, and by Monsignor F. J. Sheen, of Washington, D.C. During the meeting the Post Office Department issued 125,000,000 centennial stamps depicting the well-known painting "The Doctor," by Sir Luke Fildes, which is in the possession of the Tate Gallery. The House of Delegates elected Dr. R. L. Sensenich as President-Elect, and Dr. H. A. Christian was awarded the Distinguished Service Medal of the A.M.A. Finally, to round off in a permanent form the first hundred years of the A.M.A., the W. B. Saunders Company published the *History of the American Medical Association, 1847 to 1947*, by Dr. Morris Fishbein, Editor of the *J.A.M.A.* This 1,226-page volume contains biographies of the Presidents of the A.M.A., compiled by Dr. Walter L. Biering, and accounts by various authors of the work of the Councils and Bureaux of the A.M.A. and of its publications. The Centenary Meeting is over. The written word remains in this "History" as an account of faithful stewardship and as an inspiration for the future.

THE PHYSIOLOGY OF VISION

The physiology of vision is a notoriously difficult and controversial subject, which although of great theoretical interest has at present little clinical significance. The common defects of colour vision are congenital and incurable. Those who suffer from them are unfitted for certain occupations, because their inability to distinguish between red and green signals would make them a danger to the community, or because the occupation is one which demands a well-developed colour sense. Such individuals can be identified without much difficulty and must be prevented from following the few professions and occupations in which their disability would endanger others. They should also be discouraged at an early age from aspiring to become painters or from entering branches of industry in which good colour vision is necessary or desirable. Great ingenuity has been exercised in devising simple tests for the rapid detection of these defects. A valuable critical review of tests for colour deficiency has recently been published.[1] These tests are empirical in the sense of being independent of the truth or falsity of any particular theory of colour vision. Yet, although theories of colour vision and of the nature of "colour-blindness" may be unimportant for diagnostic purposes and valueless from the point of view of treatment, we believe that they do and should interest the medical profession. It is true that the disability caused by being unable to distinguish between red, yellow, and green is no great handicap in most walks of life. It has never been suggested that an attempt to reduce its incidence by discouraging the affected from becoming parents would be justified on eugenic grounds. But Pitt's estimate[2] that such people can distinguish less than 30 colours differing from one another in hue and saturation, whereas a normal person can distinguish 5,000, is of great general interest and is insufficiently known. It is perhaps fortunate that affected individuals are necessarily unaware how much they miss of the rich and varied world of colour. Explanation of this curious anomaly necessitates consideration of the mechanism of normal colour vision.

Exactly 140 years ago a successful London physician and versatile genius, Thomas Young, published the final form of a theory of colour vision which he had adumbrated six years before. The essence of the theory, to which the name trichromatic has since been applied, is that there are three and only three fundamental or primary colour sensations—red, green, and violet (or blue). All other colour sensations, including white and yellow, are combinations of these three in varying proportions. "This supposition," he said, "simplifies the theory of colours: it may therefore be adopted with advantage, until it be found inconsistent with any of the phenomena." No serious writer on colour, before or since, has postulated fewer than three primary sensations in normal people. The only question that arises is whether there are more than three. To explain the physiological mechanism by which these sensations might be aroused when light falls on the retina, Young in 1801 had suggested a subsidiary hypothesis that "each sensitive filament of the nerve may consist of three portions, one for each principal colour." It is desirable to bear in mind these two tentative assumptions of Young, for neither necessarily implies the other. Since the middle of the last century, when Helmholtz in Germany and Clerk Maxwell in this country called attention to Young's brilliant suggestions, almost every writer on the subject has ranged himself either as a supporter or as an opponent of the trichromatic theory. The question of the number of different retinal receptors is another, although allied, problem. The discovery of rods and cones in the retina, two histologically and functionally distinct structures, has naturally had a great influence on the development of both aspects of the theory of colour vision. It would perhaps be true to say that physicists and psychologists have tended to be more interested in the colour sensations, while physiologists and anatomists have paid more attention to the retinal receptors and their central connexions.

[1] *Report on Defective Colour Vision in Industry*, by a Committee of the Colour Group of the Physical Society. 1946. 52 pp. London. See also *British Medical Journal*, 1946, 2, 948.

[2] *Characteristics of Dichromatic Vision*. Med. Res. Cncl. Sp. Rep. Ser. No. 200. 58 pp. 1935. London.

Over the last twenty years most physiologists have favoured some form of the trichromatic theory. Hecht and Roaf, for instance, elaborated theories which, while differing profoundly from one another and from the "classical" theory associated with the name of Helmholtz, were alike in being trichromatic. Three books published in English within the last twelve months give it general support. Wright's[3] contains a wealth of valuable and accurate data on the luminosity of spectral colours, on the facts of colour mixture, and on the discrimination of colours. It is argued that these are all consistent with, and most simply explained in terms of, three primary colour sensations. Willmer's[4] is more speculative and less firmly rooted in personal researches, but is stimulating and provocative. Granit's[5] brings together under one cover his important researches on the eye by electro-physiological methods. He shows, among other things, that individual fibres of the optic nerve are connected with receptors of several different types as judged by their responses to monochromatic light falling on the retina. Many receptors are sensitive only to a narrow range of spectral colour. Yet, although there is strong evidence for seven such "modulators," they fall into three distinct groups, corresponding with blue, green, and red light.

Prof. Hartridge, elsewhere in this issue (p. 913) and in his earlier articles,[6 7] has sought to extend Granit's outstanding work to the human eye by studying the sensations aroused in himself when very small images of monochromatic light were formed on his own retina. He claims to be able to confine the stimulus to single cones or to small clusters of functionally identical cones. From these and other experiments, he concludes that there are not less than seven types of retinal receptor. The difficulties of explaining some of the facts of hue discrimination, colour mixture, and colour-blindness in terms of the trichromatic theory also lead him, as they have in the past led others, to postulate more than three primary colour sensations. If his arguments should, after careful scrutiny, be generally accepted, it will mean that the trichromatic theory has served its purpose as a useful working hypothesis and must now be declared, in the words of its originator, "inconsistent with the phenomena."

TREATING THE SYMPTOMS OF DEPRESSION

We have all experienced disturbances of affect, but with good fortune they are so short-lived and so mild that when the cause has passed our normal tranquillity returns without the help of treatment. As Stockings points out elsewhere in this issue (p. 918) the more severe disorders of mood make up a large part of general practice. The depressed and anxious patient, who may or may not have organic symptoms or signs, is so well known that he needs no description here. Whatever the exact pattern of the disturbance of feeling-tone that the patient has, there always exists the problem of how much of the disturbance is the result of difficulties the sufferer has encountered in his daily living and how much is the result of physical and perhaps constitutional changes within him. There was a tendency once to refer to exogenous and endogenous depressions, but these terms lost favour when it was believed that in many instances the illness was compounded of endogenous and exogenous causes. The term "reactive depression" is still used, and some maintain that in any persistent disorder of affect—whether a depression or an anxiety state—the causes have inevitably arisen in the circumstances of the subject's life: there may be precipitating environmental causes, but the predisposing causes are environmental too. Others recognize a precipitating cause or set of causes in such a case but maintain that the predisposition to the disorder was mainly inborn, and refer to evidence in the patient's family history and in his reactions to previous life situations to support this view. The recent dramatic results which have followed electric convulsion therapy in depressive illnesses, and particularly in involutional depressions, suggest that in these cases at any rate the illness has persisted as a result of a physical disorder.

In recent weeks, and again in this issue (p. 942), our correspondence columns have shown among our readers some lack of unanimity on this theme. Stockings, however, has no hesitation in referring to all these affective disorders as "the syndrome of thalamic dysfunction," and he assumes that the illness is in fact the result of a disorder in the behaviour of neurones in the thalamo-cortical network, but whether as a result of psychological or physical causes he does not say. Although there are many who would not follow him all the way in such a direction, most would agree with his statement that in many cases of anxiety and depression psychotherapy may be prolonged and, though prolonged, ineffective. Because of this, whatever the causes of the illness and the concomitant distress may be, any treatment which will alleviate that distress is most welcome to the patient and the discouraged practitioner. He reports favourably on a new substance called variously synhexyl, pyrahexyl, or parahexyl. This substance, which was reported upon by Adams in 1940, is allied to cannabis indica, which is taken because of the pleasant dream states which it induces. Synhexyl produces rather similar roseate states in normal people, and in larger doses it removes the distress of the subjects of anxiety and depression. Stockings found that in a group of 50 patients, some with neurotic and some with psychotic depression, there was considerable amelioration of the disturbances of feelings (dysphoria) without similar improvement in the other symptoms. The neurotic patients were helped more than the psychotic. There were no immediate complications of oral administration and no sequelae. Unfortunately the effects are temporary, but since results with other substances, such as benzedrine, are usually disappointing synhexyl may be worth further study. If it should become widely used it is to be hoped that we shall not forget that it treats only symptoms and not causes. We usually withhold opium until we know the cause of the pain.

TRIPLE CARDIAC RHYTHM

The third heart sound was first clearly described by Gibson[1] in 1907. It is soft and low-pitched, may be felt as well as heard, and varies in intensity with respiration. It is appreciated best at the apex beat, and is accentuated when the subject lies on the left side, especially if the venous pressure is raised by compressing the abdomen. As early as 1913 Ohm[2] proved that the third heart sound coincided with the lower part of the descending limb of the V wave of the jugular phlebogram—that is, with the end of the phase of rapid ventricular filling. He suggested in 1921

[3] *Researches on Normal and Defective Colour Vision.* London. 1946. 383 pp.
[4] *Retinal Structure and Colour Vision.* Cambridge. 1946. 231 pp.
[5] *Sensory Mechanisms of the Retina.* London. 1947. 412 pp.
[6] *British Medical Journal*, 1946, 1, 637.
[7] *Philosoph. Trans. roy. Soc. London*, Series B, 1947, 232, 519.

[1] *Lancet*, 1907, 2, 1380.
[2] *Dtsch. med. Wschr.*, 1913, 39, 1493.

that the sound was caused by the vibration of the ventricular walls set up by their sudden distension at this time.[3] This explanation is now generally accepted. According to Orias and Braun-Menendez[4] the third heart sound begins 0.11 to 0.14 seconds after the commencement of the second heart sound. Margolies and Wolferth[5] pointed out that this is distinctly later than the opening of the mitral valve, which coincides with the top of the V wave of the phlebogram.

Nothing is gained by calling a third heart sound "triple heart rhythm, type I a." Evans[6] and other authors agree that the sound is very common in childhood, but not in infants, and becomes more and more infrequent with advancing age. O'Meara describes in an article published in this issue (p. 922) how he heard the third heart sound in 54 to 71% of 745 young men aged 17–20, and 35–49% of 255 men aged 21–30. His ability to detect the sound improved with experience. Its presence in the older groups is interesting (15.5% in 103 men aged 41–50; 5.7% in 70 men aged 51–60), particularly since Evans stated that a third heart sound is not heard in normal subjects over 40. Thayer[7] reported a similar relationship to age. His figures for the second, third, fourth, and fifth decades were 84%, 60%, 42%, and 14% respectively.

The normal third heart sound may be confused with protodiastolic gallop, with the short diastolic murmur of active rheumatic carditis, with summation gallop, and with the opening snap of mitral stenosis. Protodiastolic gallop occurs when the third sound develops or reappears as a result of left ventricular failure. The murmur of active carditis should be distinguished with ordinary care. Summation gallop disappears when the heart is slowed. The opening snap of mitral stenosis is heard earlier and is more easily confused with a widely split second sound. The diastolic murmur of mitral stenosis is determined by the rapid ventricular filling phase, and may directly follow the opening snap or may be heard a little later.

SEVERE ERYTHEMA MULTIFORME

In 1860 Hebra[8] separated from the collection of ill-defined erythematous eruptions described by Willan and others a group which he regarded as a clinical entity of obscure aetiology and called erythema exudativum multiforme. The eruption commonly affects the extremities and is characterized by erythema with which may be associated congestion, oedema, and purpura, and sometimes vesication or bullous formation. The lesions are nummular, often target-like, and though Hebra did not mention the fact mucous membranes may be involved, especially in the vesico-bullous type of eruption. The incidence of such lesions is not less than 25% and is put by some authors as high as 60%; occasionally the lesions of mucous membrane are profuse and severe. Recurrence at variable intervals over the course of years is another common feature of the disease, and rarely the recurrences may be so frequent as to make the affliction a continuous one. The first attack of erythema exudativum multiforme is often associated with a fever, suggesting, perhaps, an upper respiratory tract infection, but subsequent attacks may be without such an onset. Toxic eruptions resembling the classical picture occur with other specific infective diseases and sometimes as an expression of sensitization to drugs.

Osler[9] was impressed by the severity of visceral lesions sometimes accompanying the exudative erythemata, especially the gastro-intestinal, renal, and mucosal haemorrhages, and in reviewing a series of sixty-one cases from the literature, including six of his own, he found that thirteen patients had died from the disease. Under various names cases resembling the severe mucosal form of erythema exudativum multiforme have been reported whose notable features were severe eye complications from a purulent conjunctivitis, pneumonia of a non-bacterial type, and sometimes death. In all these cases there was a sudden onset, with serious constitutional symptoms, grave sequelae, and seemingly little tendency to recur. Rendu,[10] using the term "ectodermose érosive pluriorificielle," regarded the group as a separate entity, while Stevens and Johnson[11] described the condition as a new disease hazardous to life and vision. Low and Davies[12] used Baader's[13] term "dermato-stomatitis," and Dowling[14] reported a series under the title of "a pemphigus-like eruption."

Stanyon and Warner,[15] in a paper on the "mucosal respiratory syndrome," reported a non-bacterial pneumonia in fourteen out of seventeen cases of erythema multiforme, with two deaths. They emphasized the mononuclear character of the infiltration; animal investigations in a search for viruses were negative. The association of pneumonia with this disease was noted in a Report[16] by the Commission on Acute Respiratory Diseases (Western Reserve University), where, in six cases of severe erythema multiforme three showed a non-bacterial pneumonia. Elsewhere in this issue Sneddon (p. 925) reviews some of these reports and describes a series of six cases. He draws attention to some features which this disease has in common with glandular fever. Keil[17] reviewed the subject and maintained the unity of the benign and severe forms of the disease. Because of its mode of onset cases of severe erythema multiforme are commonly admitted to fever hospitals. Costello[18] in a series of 75,000 admissions to the Willard Parker Hospital for Contagious Diseases found thirty-three cases of erythema multiforme of which seventeen were severe; three of these patients died. In his opinion penicillin was of value in preventing grave sequelae and death in some cases.

To sum up, severe erythema multiforme particularly affects children and young adults, has a sudden febrile onset, and severely affects the buccal mucosa, with frequent spread to the bronchial tree and sometimes to the gastro-intestinal tract. Conjunctivae and genitals are commonly affected, and the lesions in these sites may lead to ulceration and scarring. Death has occasionally been reported. Whether this syndrome is a separate entity cannot be determined in the absence of a recognized causative agent, but the weight of evidence suggests that both benign and severe forms of erythema exudativum multiforme constitute a single and distinct disease entity.

The Humphry Davy Rolleston Lectures will be delivered before the Royal College of Physicians of London (Pall Mall East, S.W.) on Tuesday and Thursday, July 15 and 17, at 5 p.m., by Dr. P. C. P. Cloake, F.R.C.P. His subject is "The Treatment of Disseminated Sclerosis by Artificial Pyrexia and Prolonged Administration of Arsenic."

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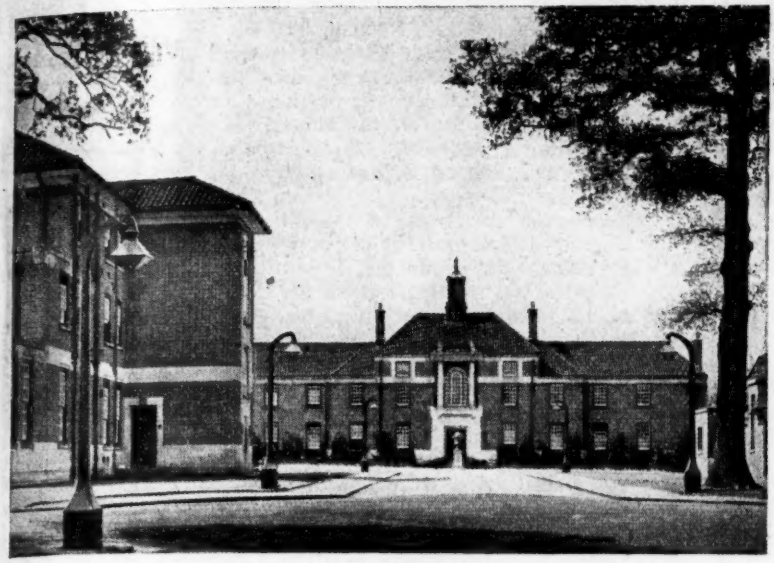
[3] *Berl. klin. Wschr.*, 1921, **58**, 600.
[4] *The Heart Sounds in Normal and Pathological Conditions*, 1939, London, Oxford University Press.
[5] *Amer. Heart J.*, 1932, **7**, 443.
[6] *Brit. Heart J.*, 1943, **5**, 205.
[7] *Arch. Mal. Cœur*, 1910, **3**, 145.
[8] *Diseases of the Skin*, Vol. 1. New Sydenham Society, London. 1866.
[9] *Amer. J. med. Sci.*, 1895, **110**, 629.
[10] *Rev. Gen. de Clin. et de Thérap.*, Paris, 1916, **30**, 351.
[11] *Amer. J. Dis. Child.*, 1922, **24**, 526.
[12] *Brit. J. Derm. Syph.*, 1938, **50**, 141.
[13] *Arch. f. Dermat. u. Syph.*, 1925, **149**, 261.
[14] *Lancet*, 1940, **2**, 759.
[15] *Canad. med. Ass. J.*, 1945, **53**, 427.
[16] Report of the Commission on Acute Respiratory Diseases (Western Reserve University). *Arch. intern. Med.*, 1946, **78**, 687.
[17] *Ann. intern. Med.*, 1940, **14**, 449.
[18] *J. invest. Derm.*, 1947, **8**, 127.



The Main Entrance

THE OLD "BETHLEM" AND THE NEW

SEVEN HUNDREDTH ANNIVERSARY OF FOUNDATION

Bethlem Royal Hospital, the first hospital to be established in Europe for the treatment of mental disorder, with the exception of one such asylum at Granada in Spain, is celebrating the seven hundredth anniversary of its foundation. When its history began, in 1247, it was as a priory for the sisters and brethren of the Order of the Star of Bethlehem. It is not clear from the records when it was first used for the insane. Some mention of this use is to be found at the beginning of the reign of Richard II (1377), and a Royal Commission in 1403 refers definitely to the confinement there of six persons of unsound mind (sex homines mente capti). This year is also the quatercentenary of the handing over of the institution by Henry VIII in 1547 (only 17 days before his death) to the City of London as a hospital for lunatics. For a few years after its transference to the City it was administered directly by the Court of Aldermen, but in 1557, along with Bridewell Royal Hospital, it was vested in the hands of a body of governors. This union was confirmed at a much later date by an Act of George III, and it continues to this day.

In the now distant past Bethlem had an unfortunate reputation for its treatment of lunatics. The contemptuous term "Bedlam" is a corruption of its name. "Sighing like Tom o' Bedlam," says a character in *King Lear*—a reference to a common beggar who, because of lack of accommodation, was turned out on ticket-of-leave. Evelyn in his Diary "stept into Bedlam," where he saw several miserable creatures in chains; some of them, he added, were "mad with making verses." At one time Bethlem is said to have derived an income of £400 a year from the indiscriminate admission of visitors drawn by an idle and wanton curiosity, a practice stopped in 1770.

The Four Bethlems

The first Bethlem was the mediaeval foundation in Bishopsgate Without. At the close of the seventeenth century it was removed to a new site in Moorfields, where a building of some architectural merit, similar in design to the Tuileries, was put up. The third Bethlem, opened at the time when London was rejoicing over Waterloo, was built on eleven acres in St. George's Fields, Southwark. This building with its copper dome, which in recent years became the Imperial War Museum, was a London landmark for more than a century. Here were transferred from Moorfields the famous two figures Raving and Melancholy, executed by Cibber, and said to have been portraits of patients in the hospital, one of them a porter to Oliver Cromwell. They evoked Wordsworth's line:

> "Bedlam, and those carved maniacs at the gates,
> Perpetually recumbent."

Knight's *London* tells us that at the time when the hospital went across the river (1815) the patients were divided into three categories: first, the furious, mischievous, and incorrigibly dirty; secondly, the ordinary and "promoted"; and, thirdly, those advancing towards recovery.

The fourth and present Bethlem was opened in 1930 at Monks Orchard, Beckenham, ten miles from Charing Cross, in a wooded part of Kent. Here it has been possible to follow the plan of segregation rather than of congregation. Instead of one frowning building there is an estate with separate villas and generous gardens, and the unit system, enabling patients on reception to be placed with those having symptoms of a like character, replaces the heterogeneous assembly of the old days. There is accommodation for 250 patients, who may be admitted on the voluntary, temporary, or certified basis. Bethlem was a pioneer in voluntary reception; as early as 1860 voluntary boarders were welcomed. At Monks Orchard there are a completely equipped surgical department, a pathological laboratory, units for hydro-, helio-, and electro-therapy, a recreation hall, and workshops for arts and crafts; and the homely atmosphere of the living-rooms and bedrooms gives point to the claim that whenever the word "Bethlem" is now used it means "curable."

The Medical Hierarchy

The first physician whose name can be found associated with Bethlem is John Arundell, a medical ecclesiastic of the fifteenth century. He was physician and father confessor to Henry VI, who suffered from a mental malady, for which Arundell prescribed a "head purge," and possibly as a reward for his services—for Henry was restored to sanity—received the mastership of Bethlem. He was more priest than physician; he collected prebendal stalls in most cathedrals of England and died Bishop of Chichester.

From early in the seventeenth century the medical staff at Bethlem consisted of a non-resident physician, an apothecary, and a visiting surgeon. The physician of course was supreme, and even in the early nineteenth century there are records of the physician's leaving his instructions for the surgeon on a slate on the apothecary's door. One of the earliest physicians was Thomas Nurse, who had a large practice in Westminster in Charles II's time, and is buried in the Abbey. He it was who first segregated the sexes at Bethlem. After Thomas Allen, an acquaintance of Pepys, there came Edward Tyson, scholar and philosopher, writer of some elaborate monographs on the dissection of animals. Tyson's portrait is in the Royal College of Physicians, his bust in All Hallows', Lombard Street, and his name is commemorated in Tyson House in the new Bethlem. He deserves it, for with him a new era opened, though many of the old crudities remained. He paid attention to patients' dietaries, installed the first nurse, established an out-patient department, and set up an after-care system. His instruction that patients should be treated "with all the care and tenderness imaginable" was given 100 years before the chains were struck from the lunatics huddled in the Salpétrière and 150 years before the metamorphosis of asylums for detention into hospitals for treatment really began. His successor, Richard Hale, was also a progressive man who considered company beneficial to the patients, and jollity, merriment, and even a band of music contributory to their recovery.

Then came the remarkable dynasty of the Monros—one of the longest in medical history. It began in 1728 with James Monro, whom the *Dictionary of National Biography* describes as a skilful and honourable physician, though his policy of not admitting students or physicians to the practice of the hospital was the subject of criticism. He was succeeded by his son John, who instituted greater privacy and comfort for the patients, and he in turn by his son Thomas, who attended George III in his derangement and is said to have prescribed a hop pillow for the royal patient. With the retirement of the next in line, Edward Thomas Monro, in 1853, the succession ended, though Edward Thomas had a son Henry, not elected to the staff of the hospital, who was a noted neurologist. Sir

Alexander Morison, the first teacher of systematic psychiatry in Great Britain, is another name associated with this period. Some of the humbler apothecaries were also noteworthy. One of them, John Haslam, in 1789 gave the first account of dementia paralytica.

The first resident physician, as distinct from the resident apothecary, was Sir Charles Hood in 1852; he excluded criminal lunatics from Bethlem. In later years such eminent names as George Savage, Robert Percy Smith, Maurice Craig, Henry Rayner, and many others have been associated with the institution. In 1914 the new designation of "physician superintendent" was made, and a panel of consultants appointed. The long reign of J. G. Porter Phillips as physician superintendent will be fresh in the recollection. The present medical staff consists of the physician superintendent (Dr. John G. Hamilton), senior and junior assistant physicians, a temporary assistant medical officer, a pathologist, the director of the psychological laboratory, and a dental surgeon, with a consulting panel of seven. The nursing staff comprises, on the female side, matron, deputy matron, seven sisters and deputy sister, 26 nurses and 18 part-timers, and, on the male side, chief and deputy chief and 28 male nurses. There are occupational therapy and physiotherapy officers.

For many years students were not admitted to Bethlem. The innovation was stoutly opposed until almost the end of the Monro era. In 1844 two students, one from St. Bartholomew's and the other from St. Thomas's, began their clinical studies at a fee of twenty guineas each, and some twenty years later the governors permitted the appointment of two resident pupils. To-day two house physicians in addition to clinical assistants form part of the medical staff. Classes of undergraduates and postgraduates from many hospitals and clinics have taken courses.

During the war a good deal of damage was sustained by the hospital. Much of it has been made good, though a wing of one of the houses will have to be rebuilt. The new Bethlem has been fortunate in its association with the City of London. Its president and great benefactor for many years was the late Lord Wakefield, one-time Lord Mayor, after whom a unit is named. On his death in 1940 Queen Mary, who had taken a deep interest in the hospital for many years, became president, and it is hoped that Her Majesty will be present at the septcentenary celebrations, which are being held this week-end.

THE PROBLEM OF PHTHISIS

B.M.A. LECTURE TO ABERDEEN DIVISION

Dr. R. R. Trail, who is the medical director of Papworth Village Settlement, gave a lecture recently to the Aberdeen Division of the British Medical Association in which he discussed a number of facts and problems concerning phthisis.

He spoke first of the placidity with which the community accepted the incidence of tuberculosis. "If we have two cases of anterior poliomyelitis or six cases of typhoid, newspaper headlines equal those given to a world crisis. No one, however, calls from the house-tops the grim fact that Great Britain in 1945 had 22,945 deaths from phthisis, 206,939 cases under observation (an increase of 48,720 since 1939), and 50,482 new cases on the register. How many more should have been notified it is difficult to estimate. We know from the results of mass radiography surveys that there are at least a continuing 15,000 unsuspected but active cases in the supposedly healthy population for the age group 17 to 24. We gain nothing by hiding from the public and from ourselves that the incidence of active disease increases steadily after the age of 35, and that very large numbers of sufferers over the age of 30 are never diagnosed, or, if diagnosed, are certainly not notified. There must be at least 150,000 men and women with positive sputum who are outside the sheltered conditions which could provide for their own safety and for the safety of their contacts in the home and in the community."

The Cost of It

The cost of schemes administered by counties and county boroughs in England and Wales for dealing with tuberculosis was nearly £4,000,000 in 1937–8; last year it was over £5,000,000. The bill for mass radiography was £200,000; family and maintenance allowances for tuberculous persons cost a further million, and tuberculous incapacity must account for at least one-fifth of the £25,000,000 spent in sickness and disablement benefits. To this must be added some part of the £23,000,000 paid to widows and orphans by the Ministry of Pensions, and some £2,000,000 in fees to insurance practitioners for attendance on the tuberculous sick in their own homes. The country as a whole was spending not less than £12,000,000 a year on this disease.

And what was the return for this expenditure? Some declared that sanatorium treatment was unnecessary, as large numbers of patients recovered without its aid, and useless, as its end-results showed it to be but a half-way house to death. Such statements ignored known facts. Sanatorium provision was a good middle part of treatment, badly let down by faulty supports at both ends, thanks in part to the strange lines on which tuberculosis services had developed. The tuberculosis officer had been encouraged to use his appointment as a stepping-stone to that of medical officer of health. Outside the Lancashire, Welsh National, and Middlesex and Surrey county schemes he had had little opportunity to rise in his own sphere. "It should be made possible for every tuberculosis officer to interchange with residents in sanatoriums and village settlements and to rise to the position of physician consultant for his own or another regional scheme." After mentioning figures suggesting the value of sanatorium treatment, he said that while there was no room for complacency there was equally no justification for making a scapegoat of the modern sanatorium, which was, at least in the mechanical sense, completely successful within the limits imposed on it.

Mass Radiography

To the present state of affairs, in which 80% of sanatorium admissions were in stage B2 or B3, some would say that the answer was in mass radiography. Mass radiography was certainly the first step towards the discovery of an unsuspected but established lesion, but it was a long-term policy in more senses than one. It was only in its beginnings; there were far too few units. Again, if mass radiography was to act as a preventive measure by segregating or controlling previously unknown sources of massive infection, it required beds immediately following diagnosis or intensive work by expanded dispensary staffs, with visits to the patient's home. Without these provisions mass radiography, while spectacular, was entirely useless.

Unfortunately the introduction of mass radiography had coincided with a decline in the number of institutional beds and the closing of some chest surgery units owing to lack of staff. People had been frightened instead of educated, given wrong ideas about infectivity, and had not had it impressed upon them that the well-run sanatorium was the only place where they could avoid massive infection. The sanatorium had always two separate duties—a duty to the community in prevention through segregation, and a duty to the individual sufferer.

"Are we really cruel if, in our present desperate state, we refuse admission to all but those fit to benefit? All advanced cases were once early cases. The dying case occupies a bed for the same length of time as it takes to bring about arrest in three early cases or restored working capacity in two moderately advanced cases. Moreover, the prognosis of the adolescent and young adult case is unpredictable; it almost always requires active therapy. It is an ultimate contradiction to weed out sources of massive infection by mass radiography and to continue a system which replaces them."

Psychological Considerations

One of the most striking things to emerge from a careful study of the statistics of mass radiography, Dr. Trail continued, was the age-group incidence of active disease—the high peaks in groups 17–24 and 35–39. In both groups many fresh lesions were found with no evidence of previous lung involvement. The story in the early group was in a significant proportion of cases of psychological difficulties, such as love affairs, family antagonisms, starting work on a distasteful job, and so

on; in the later group the trouble was more physical and economic than psychological in its beginnings—the fatigue of long journeys to and from work, with strap-hanging and the like, worries over building society payments and children's education, fears for security in middle and old age. He ventured the view that the fact that many of the world's greatest poets had suffered from the disease was not due to any stimulus given by tuberculosis to poetic power, but rather in part to frustration and a disappointment with the response to their visions.

The neuro-psychiatrist, the psychologist, and the social worker might give real help when called in by the medical superintendent, but the theory of some neuro-psychiatrists that pulmonary tuberculosis was an "escape mechanism" was to be contested. "One easy error we must avoid; it lies in reading the mental reactions to any chronic illness as those of tuberculosis in particular, and in confusing them with the psychological stresses that preceded breakdown." All chronic illness brought a sense of frustration; in phthisis this was especially marked. He considered that the best friend of the patient and of the medical superintendent was the understanding minister of religion. "When the disciplines of religion in self-examination and self-control are added to those of medicine in the humane application of sanatorium treatment our patients have the opportunity to lose that sense of emptiness which makes meal-times the outstanding events of the day and symptoms the main topic of conversation."

Social Factors Favouring Tuberculosis

Social factors which favoured tuberculosis were poverty, because it meant insufficient food and clothing and a meagre standard of living generally; the effect of war on civilians, with black-out and overcrowding and various deprivations; and slum conditions generally. A satellite town scheme would be welcomed by every thinking man and particularly by the medical profession. Social security offered insurance against breakdown; the fit were required to make bigger contributions towards the maintenance of the unfit, and some of the repercussions were already seen. To pay for these schemes taxes would have to be maintained on the "necessary luxuries" of life such as tobacco and entertainment, so that real wages must go down. Such an effect might well keep up the incidence of phthisis, and this led Dr. Trail into a discussion on the question of man-power and the betterment of what had been called the "climate of work" in order to assist production.

On his discharge from the sanatorium the patient was given well-meant advice, but the advice presupposed economic security, complete internal equilibrium, and a static order of life. The economic difficulties which drove the patient to continue working until his disease was advanced, and which worried him during his treatment, would not disappear on his return from the sanatorium, when he might find himself shunned by his neighbours and regarded doubtfully by his employer. His way was likely to be harder than that of the transgressor. To re-establish the status of the tuberculous implied psychological, physical, economic, and social restoration. Such a comprehensive scheme should be the ideal for the tuberculosis service of any region. For two groups in particular more must be done than was possible under present schemes—namely, those who were so incapacitated as to be totally unfit for any work, although able to take restricted exercises, and the chronic type (the large majority) who could with safety to themselves be trained to work in sheltered conditions for six to eight hours a day. The former should be pensioned; for the latter the most acceptable condition was the village settlement.

The Village Settlement

In discussing the part played by the village settlement, supplying both rehabilitation and remunerative work for persons in this second group, Dr. Trail entered upon a detailed description of the Papworth settlement in Cambridgeshire. He mentioned that in 1946 Papworth had a turnover of £415,000, with a profit of £18,000. Here the patients regained their self-respect through work which enabled them to support themselves and their dependants, and returned to community and family life. None of the children born at Papworth who had reached adolescence and young adult life had so far developed phthisis, and 70 of them served in H.M. Forces during the war. The late Mr. Neville Chamberlain, when Minister of Health, said that Papworth pointed the way to the mitigation or solution of a very grave problem; but few local authorities had taken his advice to repeat the experiment.

"The village settlement is, I believe," said Dr. Trail in concluding his lecture, "the only possible present answer to the problem of phthisis. It will be many years before we see the age of prevention, with ideal garden cities, where our people, educated in the laws of health, are satisfied and happy because they have both economic security and a good 'climate of work.' This does not excuse us from our present duty to the tuberculous, which lies in supplementing their physical treatment with real rehabilitation, using their untapped powers of production, giving them a chance to maintain their morale and self-respect, and saving their families to be the future teachers of our faith."

To the authorities who said that the expense of a Papworth was too great, he pointed out that any new settlement must grow, as Papworth did, round its sanatorium and first workshop. Even at present costs a settlement for 30 patients, comprising the necessary land, 10 cottages for married colonists, a hostel for 20 single settlers, and a factory with a capacity for 60 workers could be established for £50,000, and be self-supporting in its industries within ten years of its establishment.

SUPERANNUATION IN THE NATIONAL HEALTH SERVICE

DRAFT REGULATIONS

The draft of the regulations governing superannuation in the National Health Service, which the Minister of Health proposes to make, subject to the approval of both Houses of Parliament, has now been published.[1] The whole subject-matter of these regulations has been under discussion between officers of the Ministry and a subcommittee of the Negotiating Committee since the comprehensive discussions with the profession began. Although, as a result of the representations by this subcommittee, there have been very substantial improvements in the details of the proposed scheme, neither the Negotiating Committee nor the profession are in any way committed to these proposals. Nor indeed will there be any commitment to any part of the Government's proposals under the National Health Service Act until the profession as a whole is apprised of all the details, including the Minister's replies to its representations, and until through its own machinery the views of the profession have been ascertained.

The work undertaken by the subcommittee on superannuation has been to secure improvement in the terms offered without prejudicing in any way the decision which has yet to be reached by the profession. The Minister having decided to issue such regulations, covering all branches of the Service, institutional and non-institutional, medical and non-medical, the role of the subcommittee was to discuss without commitment. The Negotiating Committee will consider the report of the Superannuation Subcommittee simultaneously with, and in the light of, the reports of the other subcommittees which were set up for the purpose of the comprehensive discussions with the Ministry on the Act and the Regulations. Reference was made to these subcommittees in our leading article of June 14 (p. 853). The main features of the draft regulations, as they apply to doctors, are here summarized.

Two Schemes

The proposals fall roughly into two schemes:

I.—*The Central Health Services Scheme,* which will include: (*a*) practitioners employed by regional hospital boards, boards of governors of teaching hospitals, and by other bodies constituted under the Act *except* local health authorities; (*b*) general practitioners and their assistants on the lists of executive councils, and part-time specialists who are not devoting substantially the whole

[1] Draft Rules and Orders, 1947: National Health Service. H.M.S.O. 1s. 10d. net.

of their time to specialist services under the Act. (Those specialists who are substantially whole-time in the Service will be included in category (*a*) above.)

II.—*The Local Health Services Scheme*, which will include the medical officers employed by local health authorities. These practitioners will be subject to the Local Government Superannuation Act, 1937, but the benefits of that scheme (or of a local Act scheme where it applies) will be replaced by the benefits of the Central Health Services Scheme, with an option for existing officers to remain subject to their present superannuation scheme.

The inclusion for the first time in statutory superannuation arrangements of medical and dental practitioners in general practice has necessitated special provision in the draft regulations for this branch of practice. So far as medical practitioners are concerned the broad concept of category I (*a*) is the whole-time or mainly whole-time officer on a salaried basis, whose pension will be assessed on average remuneration during the last three years' service. General practitioners and others in category I (*b*) will have their pension assessed, in general, on the remuneration over all the years of service.

These draft regulations comprise a formidable and abstruse document of some 88 closely printed pages, and in the space available it will be possible to deal with only the main provisions in general terms.

Contributions

The new scheme is on a contributory basis, the contributions payable by the practitioner and by the employing authority being 6% and 8%, respectively, of his remuneration. A principal on the list of an executive council will be required to pay the employer's contribution in respect of an assistant in his employ.

A practitioner leaving the Service, whether by voluntary resignation or otherwise (except in cases of fraud or misconduct related to his duties), and who is not entitled to pension or allowance will have his contributions refunded with compound interest at 2½% per annum.

Benefits

(i) *Practitioners employed by regional and teaching hospital boards—Category I (a)*

PENSION: for each year of contributing service 1/80th of average remuneration (maximum pension 40/80ths).

RETIRING ALLOWANCE: for each year of contributing service 3/80ths of average remuneration—subject to reduction to 1/80th for each year in the case of a married man to provide for widow's pension (maximum retiring allowance 120/80ths).

AVERAGE REMUNERATION for this purpose is the annual average of the remuneration for the last three years' service with the employing authority.

(ii) *Practitioners on executive council lists and part-time specialists—Category I (b)*

PENSION: for each year of contributing service 1½% of the remuneration for that year (if more than 40 years' contributing service, only the last 40 years will be reckonable).

RETIRING ALLOWANCE: for each year of contributing service 4½% of the remuneration for that year, with limitation to last 40 years as for pension, subject to reduction to 1½% in the case of a married man to provide for widow's pension.

Mixed Service.—Where a practitioner in public general practice is simultaneously employed as an officer of an employing authority in some other capacity—e.g., as an officer of a regional hospital board—his remuneration in respect of his "non-G.P." service will count as general practice remuneration for the purposes of pensions and allowances.

Where a general practitioner has previously been an officer—for example, of a regional hospital board—and his service in that capacity does not exceed 10 years, remuneration in respect of that service will count as general practice remuneration for pensions and allowances purposes.

Where the reverse applies, and an officer of a regional hospital board has had previous contributing service as a general practitioner, his pension will be made up of two parts, one in respect of the general practitioner service on the basis of 1½% of each year's remuneration, and the other in respect of the salaried service on the basis of 80ths of his average remuneration assessed on the last three years' salaried service. The retiring allowance will also be made up of two parts, the calculations being made as set out under (i) and (ii) above.

(iii) *Widow's Pension*

There will be payable to a practitioner's widow one-third of the pension he would have received had he retired from the Service at the date of death or one-third of the pension he was receiving if he was a pensioner when he died. The widow's pension will cease if she remarries or cohabits with a man as his wife.

(iv) *Incapacity Pension*

A practitioner who has completed ten years' service and whose employment ceases by reason of permanent ill-health or infirmity of mind or body will be entitled to a pension. Where, on incapacity, service is over five years but less than the ten years required for an incapacity pension, a "short service" gratuity will be payable by the Minister.

(v) *Other Allowances*

There is also provision for death gratuity and injury allowance, where injury resulting in permanent incapacity has been sustained on duty, of "such amount as the Minister considers reasonable, not exceeding two-thirds of his average remuneration, having regard to all the circumstances of the case. . . ."

Qualifying Periods

The benefits of the scheme are all dependent upon the completion of prescribed qualifying periods of service. These are: (*a*) for pension—10 years' service on or after age 60 (55 for mental health officers); (*b*) for retiring allowance—5 years' service on or after age 60; (*c*) for widow's pension—10 years' service; (*d*) for death gratuity—5 years' service; (*e*) for incapacity pension—10 years' service; (*f*) for short service gratuity—5 years' service.

Retirement and Re-employment

"Pensionable age" in relation to a practitioner on the list of an executive council is the age of 65 years or "such later age as the Minister may in any particular case allow," and in relation to other practitioners is 65 years of age (60 for mental health officers). In both cases there is an option to retire at 60 (55 for mental health officers), provided 10 years' service has been completed.

Practitioners on the lists of executive councils who continue in the Service between the ages of 65 and 70 will be entitled to receive both full pension and full earnings. Those who continue in public practice beyond age 70, however, will receive either the pension to which they are entitled or their average or final remuneration, whichever is the greater.

Other practitioners (i.e., those not in category I (*b*)) who are re-employed in the public service after attaining pensionable age will be subject to the general principle governing this situation—the remuneration and pension taken together will be limited to the average or annual remuneration received before the pension became payable.

Practitioners with Existing Insurance Commitments

A general practitioner, an assistant, or a part-time specialist who is in category I (*b*), who has already committed himself to a policy of insurance with any of the Life Assurance Companies, and who joins the Service on the appointed day, may opt out of the superannuation scheme. Application for exclusion from the regulations must be made to the executive council within three months of the appointed day and will be subject to the Minister's approval. Where approval is given the Minister, subject to certain safeguards to be prescribed, will pay to the practitioner the employer's contribution of 8% of his remuneration to enable the existing insurance commitment to be maintained.

Transfer and Interchangeability

The scheme provides a considerable measure of interchangeability between the various parts of the health services and other services which are subject to statutory superannuation schemes, including the Civil Service and the Local Government Service. There is no provision, however, for a medical officer who transfers from the Local Government Service to University Service.

Any questions arising out of the regulations will be determined by the Minister.

Nova et Vetera

LITERARY SURGEONS

In a recent oration delivered before the Hunterian Society Mr. Zachary Cope discussed the association of surgeons with literature. It was not remarkable, he said, that few surgeons in the early days showed literary leanings. The surgeon in Tudor times was, with few exceptions, an uneducated person working under the direction of a physician, as a rule an ecclesiastic. Even when the scope of surgery increased the man who performed mutilating operations on fully conscious patients was scarcely likely to be of the contemplative, poetical, or imaginative type in whom literary sympathies were to be expected; and later still, with the coming of anaesthesia and antiseptics, though a vast field was opened up in surgery and many brilliant men were attracted, they had little leisure to cultivate other pursuits.

The first name mentioned by Mr. Cope was William Clowes (1540–1604), surgeon to St. Bartholomew's, who gave a rhyming introduction to his *Proved Practise for all young Chirurgions*, and the same propensity for rhyming was found in John Woodall's *Surgeon's Mate* (1639). Two Continental military surgeons, Ambroise Paré (1510–90) and Larrey (1766–1842), wrote absorbing accounts of their journeyings and adventures on military campaigns. Larrey's description of Napoleon's entry into Moscow and the retreat had "thrills to satisfy the greediest appetite." The first president of the Hunterian Society, Sir William Blizard (1743–1835), was a prolific writer in rhyme or blank verse, and Sir Norman Moore declared that his rhymes would have qualified him to appear in Pope's *Dunciad*. Another surgical versifier of the period was William Wadd (1776–1829), who wrote certain rather trivial and unoriginal books. James Hinton (1822–75) wrote philsophical books, and of him Thackeray said, "Whatever else he can do, this man can write." Volkmann, the German surgeon in the Franco-Prussian War, was a writer of delightful fairy stories, some of them composed outside Paris during the siege. An English surgeon of the same period, Sir Henry Thompson (1820–1904), in addition to exhibiting on twelve occasions in the Royal Academy, wrote two novels, one of them having for its startling theme the recognition by a medical student of his aunt's face in a dissecting-room subject. Perhaps Thompson's most remarkable achievement was his publication at the age of 82 of an elementary handbook on the nature, use, and management of the motor-car.

More modern personalities were Frederick Treves (1853–1923) and Stephen Paget (1855–1926). Treves had an attractive literary style, and his *Other Side of the Lantern* was still a best seller. Paget wrote a series of biographies and several books of essays, "quotable for hours"; Mr. Cope specially recommended his *Confessio Medici*, and in that book the essays headed "The Spirit of Practice" and "Wreaths and Crosses." Two other surgeons, still more lately gone from us, are D'Arcy Power and Wilfred Trotter. D'Arcy Power furnished 184 medical memoirs to the *Dictionary of National Biography*, and was for a time president of the Bibliographical Society and of the Pepys Society. Wilfred Trotter was a philosophical writer with a great influence on his contemporaries, and his slender volume of essays, collected and published posthumously, was packed with clear thought and memorable for many felicitously expressed and stimulating sentences. Another surgeon who wrote essays full of good sense, kindliness, considerable learning, and respect for the best kind of tradition was Harvey Cushing.

Mr. Cope then mentioned a number of living surgeons, first of all the doyen James Johnston Abraham, who early in his career gained a literary reputation by the publication of *The Surgeon's Log*, for a new edition of which there had been a call almost every year since its publication. His biography of Lettsom, his novel *The Night Nurse*, and his light essays under the title *Ninety-nine Wimpole Street* revealed his versatility. Geoffrey Keynes was distinguished as a literary critic, an editor of standard works, and a bibliographer. Kenneth Walker was a versatile writer whose earliest book was written for children, and whose autobiography, *I Talk of Dreams*, stood in many respects alone in autobiographical literature. Finally there were the philosophical books of K. W. Monserrat, the fine poetry and witty causerie of Oliver St. John Gogarty, Chevalier Jackson's extraordinarily interesting autobiography, Scott Stevenson's vivid pen-painting of Morell Mackenzie, W. E. Tanner's faithful account of his teacher Arbuthnot Lane, and James Berry's historical resurrection of his distinguished ancestor. The profession of surgery had produced, especially during the last hundred years, a number of cultured men of high and in some cases outstanding literary ability—essayists, biographers, descriptive writers, novelists, philosophers, minor poets, and at least one famous bibliographer.

Preparations and Appliances

A TAPER TYPE INFLATOR FOR ANAESTHETIC MASKS

Dr. A. OWEN-FLOOD, Hornsey, London, N.8, writes:

I have never been on good terms with the conventional inflatable anaesthetic mask. It is definitely—and especially when made of synthetic rubber—bad value, becoming useless after a short period. Its long vermiform appendage of rubber, through the lumen of which one blows lustily to inflate the cushion, inserting with haste an ill-fitting bone bung, deteriorates rapidly and renders an otherwise serviceable mask unreliable and prone to leak, usually at awkward moments—when giving oxygen under pressure in cases of asphyxia.

FIG. 1.—Taper valve, mounted.

The taper-type valve illustrated here is firmly seated into the body of the cushion. With the taper pin lifted from the valve seating by unscrewing the milled head (a few turns anti-clockwise), the mask is readily inflated by means of a 20-ml. syringe, the nozzle of which fits snugly into a slot in the milled head. The mask, part of which appears in the photograph, has been in continuous use in an out-patient department for the past twelve months. It has given excellent service, needing inflation on only two occasions. It is still in excellent condition. Any instrument-makers interested in this device can have full blueprints from me.

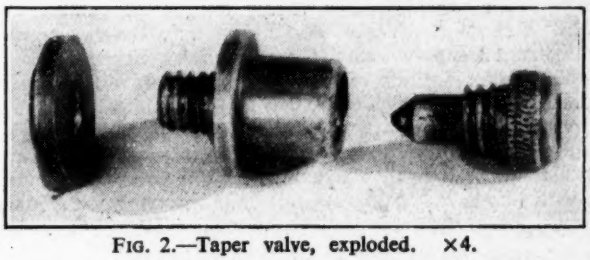


FIG. 2.—Taper valve, exploded. ×4.

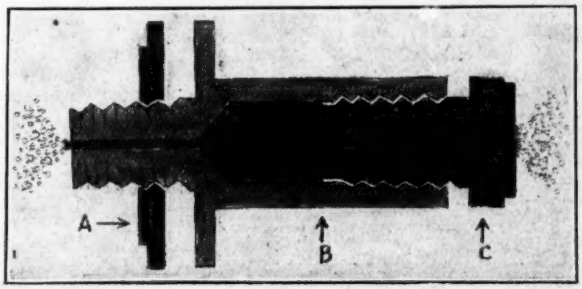


FIG. 3.—Taper valve inflator (not to scale). A=Fixing washer; B=Valve seating; C=Inflator control knob.

Reports of Societies

SYMPATHECTOMY

At a meeting of the Section of Anatomy and Physiology of the Royal Academy of Medicine in Ireland on March 21, with Prof. O'Connor in the chair, Dr. V. E. C. HAMILTON read a paper by Prof. H. Barcroft and himself entitled "The Results of Sympathectomy."

There had been three main phases in the evolution of operations for the sympathetic denervation of the upper extremity: periarterial sympathectomy, cervico-dorsal ganglionectomy, and the preganglionic operations of Telford and Smithwick. Methods of investigating sympathetic activity included sweating reactions, the psychogalvanic reflex, and skin resistance measurements dependent on reflex sudomotor activity; photo-electric plethysmography and venous occlusion plethysmography dependent on reflex blood vessel responses; and skin temperature measurements, which were dependent on both reflex vasomotor and reflex sudomotor activity. Venous occlusion plethysmography was preferred as the post-operative test to determine whether any sympathetic activity remained.

Hand-blood flows were measured using the venous occlusion plethysmograph in 28 limbs sympathectomized by the Smithwick operation. Reflex vasodilatation was tested for by two methods: (*a*) feet heating, and (*b*) anaesthetization of the radial, ulnar, and median nerves in the arm, which temporarily interrupted also the sympathetic nerves to the hand. The results obtained by these two methods were invariably in agreement. Sixteen sympathectomized hands showed complete absence of vasomotor control at the time of testing; 12 hands showed the presence of a slight degree of vasomotor control much less than that possessed by normal hands. A possible explanation of the 12 partial failures was that a partial regeneration of sympathetic pathways had occurred. From the clinical aspect the results were very good, only one patient considering that operation was not worth while. Complete relief of vasospastic symptoms occurred in 16 hands, though attacks of the Raynaud phenomenon had been frequent before operation. In 10 hands attacks had been less severe and/or less frequent, in 2 hands as frequent and as severe, and in no case had attacks been more frequent or more severe after operation.

Some Difficulties

Mr. P. FITZGERALD said that the difficulty of performing an efficient dorsal sympathectomy, due to the inaccessibility of the chain, almost certainly accounted for some unsatisfactory results, while others were probably due to anatomical variations. Regenerations were also likely, since the gap between the segmental supply and the postganglionic fibres was small in this region. Major relapses were probably due to faulty operative technique, while minor relapses could be due either to regeneration or to persistence of unusual pathways. The most marked feature in all cases from the clinical point of view appeared to be the relief of pain, which in serious cases might be distressing. The pain pathways might possibly be mediated through the sympathetic nervous system.

THE PNEUMOCONIOSES

At a meeting of the Section of Medicine of the Royal Society of Medicine on May 27, Dr. MAURICE DAVIDSON presiding, a discussion was held on pneumoconiosis.

Dr. E. R. A. MEREWETHER said that the 500 deaths which still occurred every year due to pneumoconiosis were a challenge to medical men and to all responsible for the control of this disease. Pneumoconiosis, according to the Workmen's Compensation Act, 1943, Sect. 1 (2), meant fibrosis of the lungs due to silica dust, asbestos dust, or other dusts, and included the condition known as dust reticulation, but many medical men as well as laymen took a less precise view and argued that it included any infection of the lungs produced by dust. The meaning must be made plain when using the word, particularly in the medical certificate or radiological report, or difficulties and disappointments would arise if possibilities of compensation were discussed when none existed. Using the term "pneumoconiosis" in its legal meaning, he was led to the question of diagnostic criteria. Here reliance must be placed upon the nature of the occupation and the radiological picture. The results of the clinical and the radiographic examination might be of doubtful significance, but the occupation, if thoroughly investigated, might carry conclusive weight in conjunction with the other examinations.

The question of radiographic appearances needed reassessment. Consideration must be given not only to the purely radiological technique, but to the determination of the limit of normality—the differentiation between abnormal markings indicating the presence of dust but with no disease present, and those indicating the presence of dust together with disease. Fifteen years ago the radiological appearances of asbestosis were considered by leading radiologists as coming within normal limits, but now a stage had been reached in which they were involved in more difficult matters of interpretation of dusts which merely produced shadows without disablement or disease and those which had a more sinister significance. In the past radiography had been emphasized chiefly as an aid to diagnosis; now it had to be developed as an aid to the assessment of disablement and a guide to prognosis. Both these aspects had lately increased in importance because of increased compensation, the rehabilitation measures set up under the Disabled Persons Act, and the provision of employment for pneumoconiotics.

A great deal more knowledge was needed concerning incidence rates in occupations, because these would provide an index to the efficiency of preventive measures. Both the risk of silicosis and its severity when it occurred varied very much in different occupations. Much was said of its incidence in coal miners, but from a rough calculation it appeared that the mortality from the disease among sand blasters was greatly in excess of that among coal miners. More data were also required on the effects of massive exposure to the commoner dusts.

Dr. CHARLES FLETCHER described an investigation he had carried out in South Wales into cases of men who had been certified as suffering from pneumoconiosis during the last twelve years; 60% of them were under the age of 50. The number of certifications was 15,000. Why had this situation developed? One factor had been the ignorance of medical men, who had assumed the condition to be bronchitis and not silicosis and had not taken steps to prevent it. On *x*-ray examination of some of these cases it was found that simple reticulation, or the diffuse lung disease, tended to remain stationary, though there were cases in which coalescing shadows went on developing relentlessly. These were cases which had left the pit after the first *x*-ray examination, so that the progress was not caused by continued exposure to the dust. The progress was nearly always associated with a high sedimentation rate, which suggested that an infection might be responsible. Only 3.5% of the cases with massive shadows showed a positive sputum; when there was a positive sputum the prognosis was poor. Surveys of various kinds were still to be made, together with therapeutic trials.

Subclinical Silicosis

Prof. MATTHEW STEWART spoke on the question of subclinical silicosis. It was not sufficiently realized how effectively a healthy man could get rid of the dust. Cases were encountered in which there was a large accumulation of dust in the trachea and in the bronchial and hilar glands, and yet there was very little evidence of silicotic disease. In one series of cases the silicosis occurred only in the lymphatic glands. The difference between the morbid anatomy of silicosis and of asbestosis was interesting. Why should asbestosis be so diffuse as compared with silicosis? Why should it be so marked at the lobes and at the base of the lungs? The theory he had formed was that it was a question of the chemical action of the two dusts. The dust in silicosis was very fine, with little rounded particles of regular shape, whereas the asbestos dust was fibrous and could not be inhaled directly into the lungs in the same way as silicosis dust, the mode of entry being by gravitation.

In some further discussion Dr. BROWN, of Newcastle, suggested the existence of a large undiscovered field of this disease in North-east England. Dr. HORACE JOULES

suggested that, in view of the frequency with which Welsh miners came to London and became milk roundsmen, mass radiography for all milk roundsmen should be introduced. Dr. JACOBS said that there had been too much complacency in the medical profession with regard to the presence of large amounts of dust in the lung. Dr. PHILIP ELLMAN referred to the early development of symptoms in asbestosis as compared with silicosis. Several cases he had encountered had developed within from one to three years. The seasonal incidence was noteworthy; during the winter months tenacious sputum containing asbestos bodies was found.

Dr. MEREWETHER pointed out that the powers under the new Act were very wide, but the Minister must be satisfied before he could prescribe anything in any occupational disease, and this meant the collection of data.

STATISTICS IN PSYCHIATRY

At a meeting of the Section of Psychiatry of the Royal Society of Medicine on June 10 Dr. L. S. PENROSE, Galton Professor of Eugenics, University College, London, and lately Director of Psychiatric Research, Ontario, gave a paper on the importance of statistics in psychiatry. The simple accumulation of accurate figures concerning the ages of patients and their length of stay in hospital, said Prof. Penrose, was of great value in understanding the scope of psychiatric problems. It was surprising how little use had been made in the scientific study of psychiatry of the simple actuarial material relating to mental illness. Reports of the Board of Control forty or fifty years ago were full of interesting information about the ages of patients admitted to institutions, but presumably this was thought valueless and had been dropped.

The elementary accountancy of numbers of patients under hospital care or under treatment at clinics was of great sociological as well as clinical interest. It was common knowledge that only a small proportion of mentally ill or defective persons in a community were actually certified, the proportion depending upon the degree of development of the mental health services. On comparing statistics of all countries from which figures were available, he had come to the conclusion that the amount of attention paid to mental health was inversely proportional to the amount of serious crime. Very roughly, two beds in a mental hospital made one prison cell unnecessary. As prisons cost twice as much as mental hospitals for each inmate, there was approximate economic equivalence, but the social advantage was presumably with the hospital beds. In mental deficiency much could be learned if the age group and intelligence distribution of institutional cases were known. At a guess, probably one-third of all idiots were under institutional care, one-sixth of all imbeciles, but only one-twentieth of all feeble-minded, and of borderline cases only a small fraction. Some very marked selective mechanism determined just which cases should be cared for and which left in the community. Families in poor circumstances contributed an undue proportion of institutional cases. Patients with behaviour disorders added to defect were also concentrated in the institutional group.

Among the mentally ill one deduction from statistical data was that the longer a patient stayed in hospital the more likely was he to be a schizophrenic, even if that was not the original diagnosis. Schizophrenia, like mental defect, was more severe in males than in females, as shown by its earlier onset in the male sex. With affective psychoses the relationship was probably reversed, the female cases, at least those of early onset, being more abundant.

The use of statistics in estimating the effects of toxins, drugs, or remedies had reached a considerable level of accuracy in animal experiments, but in medical practice the problem of finding adequate control populations often prevented reliable conclusions. It was possible with good statistical records to find out the chances that a patient first admitted at any given age would be found on the books of a mental hospital at any subsequent point of time. Tables which he prepared in Ontario indicated clearly that fairly good results were obtained after three years by shock therapy in psychosis of late onset, but no appreciable effect was obtained by all the vast amount of work (insulin and convulsion therapy) done on cases of early onset, the majority of which were diagnosed as schizophrenia. He was aware that many careful observers considered the results unsound and too pessimistic, but he was inclined to think they gave a very fair picture.

Biometric Techniques

Prof. Penrose then turned to an elaborate discussion of biometric techniques. Knowledge of ordinary statistical practice, he said, was very helpful in guarding against elementary errors and in establishing significance or otherwise of metrical deviations from the normal found in mentally ill subjects. Some difficulties arose because the range of variation might be much more marked in abnormal than in normal groups. The increased variance between groups of abnormal subjects as compared with normals was well known. Furthermore, abnormal reactions in themselves might be characterized by either too much or too little variety (i.e., scatter or stereotypy). He described the advantages of the discriminative approach between normal and abnormal reaction as compared with the much more fashionable typological approach. From the point of view of research it was always advisable to proceed from the known to the unknown, and thus, starting with known differences—as, for example, between the sexes, between normals and neurotics, or between different types of diseases—the discriminating qualities extracted from these known types could be applied to unknown conditions.

In discussing different types of tests and their outcome, he mentioned one result which was suggestive and rather surprising—namely, that male schizophrenics unquestionably tended to give the feminine type of profile or pattern. It appeared also that female schizophrenics were, on the average, super-female, and not, as might have been supposed on the basis of certain other work, intersexual. It seemed that schizophrenics were fundamentally too feminine; or, looked at in another way, many cases of relatively early onset had an intersexual, and those of late onset a supersexual, tendency.

In conclusion Prof. Penrose spoke briefly on the elucidation of the genetic background of psychiatric phenomena. Diseases due to rare recessive genes could be detected by finding an increased consanguinity rate in the parents. Among mentally defective patients the incidence of consanguinity in parents was particularly illuminating and indicated that some types of cerebral diplegia and microcephaly were due to single recessive genes. The problems of defining clinical entities were better solved by familial investigations than by factor analysis in random samples, because only by familial study could factors due to genes be identified. Moreover, combined clinical and genetical observations could reveal the existence of new clinical entities. If the psychoses were in fact made up of a set of separate illnesses, each purely genetically determined, there should be no more overlap in families than that due to random expectation. Actually, manic-depressive and schizophrenic types did overlap in family histories rather more than would be expected if they were quite separate genetical entities.

TREATMENT OF TUBERCULOSIS

A clinical meeting of the Medical Society of the L.C.C. Service was held at Colindale Hospital on June 5. Mr. CLELAND, in opening a discussion on tuberculous empyema, pointed out that in the days before penicillin, if such an empyema were secondarily infected, a thoracoplasty, though a risky procedure, had often to be carried out. Now repeated aspiration and instillation of penicillin frequently resulted in clearing up the secondary infection completely, with great improvement to the health of the patient, thus minimizing the risk of thoracoplasty if surgical operation were necessary at all. It was important to aspirate high up in the axilla in order to avoid formation of a sinus. Dr. W. F. RICHARDS remarked that there was a danger in continuing the treatment with penicillin and aspiration in mixed infections for too long, as many of those cases had a bronchopleural fistula.

Mr. E. T. BAILEY said that the treatment of bony lesions had to be dependent on the general condition of the patient, and advised removal of sequestra as soon as the condition of the patient permitted. In order to lighten the work of the nurses in the orthopaedic wards he had adapted the Hey-Groves spinal bed for treating cases of spinal and sacro-iliac tuberculosis, but

had not found it very satisfactory for female patients owing to the difficulty of micturition. Mr. JAMES CARVER said that he had shown several cases of tuberculous epididymitis on whom he had done an epididymectomy, demonstrating that it was possible to get excellent healing and very seldom necessary to remove the testis at all. The psychical trauma resulting from removal of the testis was such that every effort should be made to avoid it. If the testis were involved slightly it might be curetted and the cavity treated with pure carbolic. There was no danger in cystoscopy in these cases nor in retrograde pyelography, if necessary, in renal tuberculosis.

Dr. HURFORD said that before the war he had done a five-year follow-up on 85 cases of thoracoplasty and found 65% well and working. The best results were achieved by combined operations and sanatorium treatment both before and after the surgical intervention. Dr. SMITH pleaded for the use of the laryngeal swab on patients who were apparently sputum negative. In a series of 100 such cases 42 had positive laryngeal swabs. Dr. SNELL stressed the importance of bed rest. He had had very good results from strict bed rest, even for a year. The difficulty of carrying out bed rest strictly was much lessened if it was accepted as part of the routine of the hospital.

Correspondence

Physical Therapy of Mental Disorder

SIR,—There has been so much irrational talk in this controversy that perhaps one may attempt to clarify a few points logically. In the first place a mental illness must either be organic or non-organic or a mixture of the two. We will disregard the last as it would only confuse matters. By organic we mean cases due to syphilis, alcohol, trauma, vitamin B deficiency, etc. By non-organic, cases of depression, mania, paranoia, schizophrenia, and the neuroses. Organic cases obviously cannot benefit by electrical treatment or leucotomy. To turn to the non-organic cases. The causes of these are still obscure, but an important aetiological factor is an abnormal life-situation. This must be tackled. If psychotherapy is applied without this, the aetiological factor continues to work and negatives all the results. The question arises, are there really any "non-organic" cases? This is a most difficult question to answer, but possibly there are not. But here we are still hindered by the nineteenth century notion that the mind is a function of the brain, whereas in reality it is related to the entire body.

The statement is often made that E.C.T. is painless, that it results in immediate unconsciousness. This I am quite sure is not the case. That the experience cannot always be remembered is, I believe, due to very strong unconscious repression; but it is none the less real, or else how can it be explained that nearly all patients have an intense and growing dislike of the treatment, so that I have known patients who have had to be dragged to the place of execution by four or five nurses? It is also known from cardiazol treatment, where the interval between the moment of insult and the subsequent fit is longer, that terrible experiences were undergone. One of the results of a whole series of powerful inhibitions accompanied by organic losses of memory is to render the case inaccessible to psychotherapy.

The misleading argument is often produced that if the patient is not submitted to these violent procedures he will become a "chronic mental hospital patient." We shall have to examine the implications of this expression. The chronic mental patient is a product of the present type of mental hospital. The sort of treatment meted out in these "prison barracks" is often sufficient to drive a perfectly balanced person insane. To take a minor example: a patient who is apt to be rather mischievous was treated by the male nurses by forcibly replacing him on a chair every time he attempted to rise from it. When I first saw this patient this had been going on for about ten years. Is it surprising that he was demented? And far worse things than this occur. Psychiatry has to become a social science and develop a social conscience, and this in more ways than one. In every case of a non-organic psychosis or psychoneurosis there is the family of the patient to consider. If this is not taken into account treatment may very easily be applied to the wrong person.

To take two examples coming to out-patient clinics. A boy of 17 was brought to this clinic by his father because he thought he took too much interest in the other sex. The father was the most extraordinary prudish old woman of a man I have ever seen; the boy, we agree, was quite normal. Now are we going to take the boy into a mental hospital and give him a course of electrical treatment? He probably will develop schizophrenic symptoms in the next few years living with such a father, and prophylaxis might be considered better than cure.

Another case—a woman of 30 who showed symptoms of withdrawal of interest in life. She was slightly mentally deficient, and her mother had literally never let her go out of her sight, even into the next room. She was quite lost and terribly upset when the psychiatrist wanted to see her without her mother. I have chosen cases where the family factor is obvious, but I believe it is present in all non-organic cases, although it may be most subtly hidden and disguised by the relatives.

At present I have a female patient whose personality has been totally suppressed by her mother—a most dominating personality who uses subtle weapons of "ill health" and "affection" in order to maintain her hold on the family. This patient would probably be labelled as a case of "depression" and treated by the enthusiasts as a very suitable case for E.C.T. She would appear to improve and return to her mother, who would gain an even stronger hold by suitable references to her "disgrace" in being taken into a mental hospital. After a time all the symptoms would return. A further course of E.C.T. would be required, and so it goes on until a day would come when the parents would be summoned to the medical superintendent's office and solemnly informed that unless a leucotomy was performed their daughter would become a chronic incurable inmate. They would agree to the operation, and she would be returned to them in a semi-infantile condition. The mother is delighted—the daughter cannot possibly leave home now. She will need all her loving attention for the rest of her life. Such things really happen; I could multiply them indefinitely from my own experience.

The great majority of such psychoses start in adolescence, usually at the age when the young man or woman should leave home and become independent. If we can rescue him from his parents and transfer him to a happy and healthy social circle we can always cure him with the aid of psychotherapy and re-education. The great need is for hostels for such cases run by the right sort of people who can create a happy social environment and who have had suitable psychological training. That is one reason why psychiatry must become a social science. It is a tragedy that those who sincerely desire to help the mentally afflicted should be attempting to do this by converting the curable non-organic case into an incurable organic one, for anybody who has had several courses of E.C.T. or a leucotomy is actually a case of traumatic psychosis. It may be easier to handle such a traumatic case than to deal with a complex life situation with difficult psychological factors, but this sort of traumatic case is really incurable, and they are mounting up. An enormous amount of unnecessary mental and physical distress is being created by the popularity of these methods—their quick showy results which are not cures at all. Future generations of doctors will be as much appalled by them as we are now by the former treatment of cholera by blood-letting and purging.

To sum up: (1) The mental hospitals need to be pulled down and replaced by social centres, hostels, and a boarding-out system for all but the most acute cases. The co-operation of factories run for disabled persons can be of the greatest value. (2) Acute cases should be treated by rational physical therapy, not brain damage, in a general hospital. (3) The total life situation of the patient must be tackled; otherwise psychotherapy may be ineffective. (4) There is need for research in psychosomatic medicine. (5) Improved general education of psychiatrists so that they can see through the fallacy of converting every case of doubtful aetiology into a traumatic psychosis by means of E.C.T. or leucotomy.—I am, etc.,

London, N.W.11. T. GLADSTONE.

SIR,—The controversy regarding the merits of psychological and shock treatment seems to be the result of confusion. Dr. D. W. Winnicott (May 17, p. 688) upholds psychotherapy and condemns shock treatment. Naturally he does so, since his time is devoted to the treatment of neurosis, and presumably he sees few if any psychotics. Psychotherapy is the treatment of choice for neurosis and in experienced hands produces excellent results, so he sees no good in electrical or other organic methods of cure. Similarly all the irate psychiatrists who have written such virulent letters against Dr. Winnicott are those who treat psychotics. Now admittedly psychotherapy is not a satisfactory weapon against the psychoses, and in proper hands

the shock type (E.C.T. or insulin) of therapy does produce results whether Dr. Winnicott wishes to believe it or not.

My personal complaint is that this schism tends to split psychiatry into two camps. Surely the proper training should consist in a basis of psychotherapy for the neuroses and a knowledge of electrical and insulin treatment for those who need it. Unfortunately there are many who, in their ignorance, have come to despise psychotherapy and delight in their shining machines and glittering syringes. In the same way the more conservative of the older psychiatrists refuse to countenance the occasion for good in the new ways and curse the young for whoring after strange gods. It seems to me that the simple secret of cure is the ability to diagnose the psychiatric condition and the broad-mindedness to use the right method, whether shock or psychological. Such success as has come my way has come from this.

Now may I offer a criticism of those who use shock treatments? First, they do not cure such illnesses as homosexuality, fetishisms, hysteria, and simple neuroses, yet I have seen them uselessly applied. Secondly, only this week a woman came to me who feared to have E.C.T. because she had been hustled into a side room all ready for the machine as soon as the preceding patient had been whipped off. Unfortunately she heard the epileptic cry, and this unearthly sound haunted her so that she feared to have further shocks. I have seen similar patients. It is a piece of unnecessary cruelty to allow such a thing to happen whether we believe that mental illness is the result of a "subacutely or chronically diseased physical organ called cerebrum" or not. Lastly, may I suggest that leucotomy should be reserved as a forlorn hope for those who have failed to respond to E.C.T., insulin, and perhaps prolonged narcosis? It has a significant death rate, and severe injury to the personality may result even if no intellectual damage does result.

Lest it be thought that I am hostile to organic forms of treatment may I record a case which passed through my hands many years ago and which suggests that there may be undreamed of forms of treatment? This was a middle-aged woman with mitral disease. She was so grossly hallucinated that she kept the ward echoing with her shouts of abuse. Her days were hell and her nights a torment. Then one day she developed an infarct in the left side of her brain, with a resulting right hemiplegia and motor aphasia. The "voices" stopped instantly as if disconnected. When she was recovered enough to be able to express herself she said that it had been truly magical. Perhaps one day a surgeon will be able to repeat such magic at will—but we shall still need psychotherapists for the neurotics.—I am, etc.,

London, W.1. CLIFFORD ALLEN.

SIR,—Psychiatrists in general and all those interested in the empirical aspect of psychiatric research, particularly on the therapeutic side, will view with some misgiving the prominence afforded to the criticisms of the physical treatments of mental disease outlined by Dr. D. W. Winnicott (May 17, p. 688). If my memory is correct, Dr. Winnicott has already voiced similar criticisms in the correspondence section of the *British Medical Journal*, where viewpoints do not lose their purely personal touch. When, however, these personal opinions are promoted to the importance of a special article, they tend to assume the imprimatur of authority and are consequently liable to be accepted as unimpeachable expert opinion based on extended and specialized experience. They must, on this interpretation, create widespread misconception among non-psychiatric medical colleagues, particularly when they are of an exclusively destructive nature as in this case.

Dr. Winnicott's opinions, apparently given originally to the medical section of the British Psychological Society, would appear to constitute, in a rather defensive fashion, the viewpoint and attitude of the purely psychological school of thought towards mental disease, as represented actively by the psychoanalysts. To the latter any encroachment, with a tendency to monopoly, by the physical therapists must appear in the light of rank heresy and be denounced as "empirical magic." Every experienced psychiatrist admits the necessity of recognizing both psychological and physical factors in mental disease and wisely combines both in his therapeutic approach. The American authority, Dr. A. P. Noyes, emphasizes this point in his *Modern Clinical Psychiatry* as follows:

"No one formulation, whether it be chemical, physiological, neurological or psychological, can explain all the phenomena observed in those personality disorders that we call mental disease. We must remember that much of our talk about the unconscious, about organic lesions and about disturbed chemistry is as yet hypothetical. In psychiatry we deal with the socially conditioned biopsychic life of the individual, and the biopsychic life, it is obvious, is subject to an incalculable variety of influences."

E.C.T., which has been mainly attacked by Dr. Winnicott and, rather flippantly, on the grounds that psychiatrists do not use it on themselves, may not, in many cases, effect a cure *per se*, and is generally followed up with a combination of psychotherapy and occupational therapy, as here in Killarney Mental Hospital. All three create a reinforcing effect in the therapeutic adjustment of both the psychic and physical elements of the disorder under treatment. In actual fact, E.C.T. effects a very high percentage of recoveries in the true uncomplicated depressive psychoses, particularly the involutional types. The high percentage rate of recovery is such that the criticism of Dr. Winnicott, even though admittedly based on "personal prejudice," will not cause any undue anxiety among practising psychiatrists. Further, the efficacy of E.C.T. in the case of all confusional psychoses of toxic origin, whether puerperal or otherwise, is of such a nature as to be regarded as specific.

Dr. Winnicott's reference to "organized paranoia" would suggest, on his part, some confusion in nomenclature as well as practice. Quite obviously, from his ensuing remarks, he is confusing true paranoia with the paranoid form of schizophrenia, and his suggestion of the indiscriminate use of E.C.T. for this latter disease is entirely contrary to recent practice. It is now generally admitted that unmodified E.C.T. for any form of schizophrenia does not effect a cure even in the acute cases. This is our experience in this hospital, though there have been very encouraging results in the administration of E.C.T. following thyroxine premedication in acute and recent cases. In one such case, where a full course of deep insulin therapy here had been a failure, there was a very successful result in the modified form of E.C.T. described.

All treatments, whether physical or psychological, will be judged on the following considerations: (*a*) good results achieved, (*b*) the permanency of these results, and (*c*) absence of injurious effects, whether immediate or residual. (*a*) The results in the conditions already outlined cannot be questioned on any extended experience. (*b*) Present experience goes to show that there is a very high degree of permanency in the results achieved for the conditions mentioned above. Even in the very small number of relapsing cases, hospitalization is reduced to a very considerable extent as against control cases. (*c*) There are no immediate ill-effects that would contraindicate E.C.T., and the alleged brain damage has not been borne out in the vast number of cases that have been submitted for the treatment. It is on these three grounds that E.C.T. has been accepted as a very definite therapeutic advance in psychiatry, even Dr. Winnicott admits rather pointlessly, "I have no hope that these arguments will make any sudden difference to the now established practice of psychiatry."

There are many other points in Dr. Winnicott's article, as absurd as they are flippant, that do not merit recognition, much less contradiction. There is, however, reference to mental hospital management in the penultimate paragraph of his article which is entirely contrary to fact. Probably in no form of nursing are the qualities of forbearance, patience, and understanding so necessary and still so generally exercised as in psychiatry, and to suggest that it is permeated with hatred and cruelty casts a very objectionable reflection on modern mental nursing. This unfounded charge is no less absurd than the "sympathetic" consideration expressed for the doctors and nurses whose protection from developing "emotional instability" in the cause of their work may be seriously threatened by the "abolition of shock therapy." Does there exist a rational being who is convinced of either the validity or the sanity of such arrant nonsense? Dr. Winnicott apparently thinks there does.—I am, etc.,

Killarney, Eire. EAMON N. M. O'SULLIVAN.

Tuberculosis and Diabetes Mellitus

SIR,—I should like to associate myself with Dr. Wilfrid Oakley's plea (May 31, p. 780) for sanatoria where efficient management of diabetes could be given to diabetics being treated for pulmonary tuberculosis. The tuberculous diabetic does not often receive adequate treatment for both his diseases, and it is therefore not surprising that many of these patients fare badly. It is essential that both diseases receive proper consideration, and until special centres are created to ensure the

correct management of both maladies the results will not give hope and encouragement to sufferers or their medical advisers.

The tuberculosis service in this country may have reached as high a peak of perfection as it has ever attained since its inauguration, but this will hardly avail the diabetic unless his metabolic disturbance be at the same time under expert supervision. Experience has shown that good treatment of the pulmonary disease with inadequate supervision of the diabetes is as harmful as poor treatment of the phthisis with proper control of the diabetes. It goes without saying that bad treatment of both conditions is inevitably disastrous. The truth is that in many instances the tuberculous diabetic is uncared for according to the best medical standards, and the evil effects of this are brought to our notice in the published results of treatment.

At the few clinics where adequate control of both diseases has been enforced from the beginning the results have indicated that the outlook for the diabetic who develops phthisis hardly differs from that of the non-diabetic. Figures published from sanatoria in the past have led to false conclusions as to the seriousness of the combination of these two diseases; the bad results obtained were probably due to inadequate control of both conditions according to modern therapeutic standards. Unfortunately this fact has not been fully realized, with the result that the tuberculous diabetic has acquired a stigma of hopelessness based on mismanagement of his diseases.

Publication of the new version of Section I of the Appendix to Memorandum 37/T (Revised), which has been accepted by the Ministry of Health (*Supplement*, May 31, p. 111), raises important considerations concerning the tuberculous diabetic. In the section on the classification of patients suffering from tuberculosis, it is stated that "all cases with grave complications, whether they are tuberculous or not, should be classified in this group [group B3] (e.g., diabetes, tuberculosis of intestine or larynx)." My first objection to this new classification is that it places the diabetic whose disease is complicated by a small pulmonary lesion in the same category as the patient with advanced bilateral fibro-cavernous disease. Secondly, the presence of diabetes is looked upon in the same light as tuberculous enteritis or laryngitis. Here, surely, a gross injustice is done to the diabetic. Whereas the onset of tuberculous enteritis in most cases heralds a fatal issue, the outlook for the tuberculous diabetic, as emphasized already, is never as serious as this unless by virtue of the extent of his pulmonary disease. The combination of diabetes and tuberculosis should never be regarded as the equivalent of hopeless and irrecoverable disease.

Apart from the objections on medical grounds to placing tuberculous diabetics in the class B3 one can imagine many other disadvantages that such a patient may suffer owing to his consideration in this group. B3 cases have always been regarded as suffering from advanced pulmonary disease, so that there has been no urgency in considering their admission to sanatoria for treatment. They may be left at home, if conditions allow, or they may be admitted to homes or hospitals for advanced cases. It would be most unfortunate if tuberculosis officers should be led, after reading the new classification, to treat their tuberculous diabetics in a like manner. The development of phthisis as a complication of diabetes should be looked upon as a medical emergency, requiring prompt treatment for both conditions. An unnecessarily long wait for admission can only mean advance of the pulmonary disease together with inadequate control of the diabetes and a poor outlook for the patient; accordingly, such patients warrant priority on the waiting-lists. Finally, are the benefits of the maintenance grants from the Treasury (Memo 266/T) to be withheld from tuberculous diabetics under the new scheme of classification?

The diabetic surely has to suffer enough already on account of his unfortunate affliction without having additional difficulties put in his way which are based merely on prejudice and receive no support from properly instituted clinical studies. It is to be most earnestly hoped that further consideration may be given to the amended Section I, wherein diabetics are included in class B3, and that special units will soon be established for the treatment of tuberculous diabetics.—I am, etc.,

Maidstone, Kent. GEORGE R. W. N. LUNTZ.

Classification of Tuberculous Patients

SIR,—Dr. H. E. Stevens's letter (May 31, p. 782) draws attention to a deficiency in the new classification of tuberculosis terms recently adopted by the Ministry of Health. The object of adopting the new classification is not stated, but presumably it is mainly to secure increased accuracy of returns through clarification of the headings used in compiling them. My own belief is that this object will not be attained by the present proposals, and if other tuberculosis workers feel the same they might consider whether it is worth their while to ask for a re-examination of the scheme now put forward.

The following are some of the grounds on which I base my opinion:

(1) The replacement of the self-explanatory terms "minus" and "plus" by A and B is to me a retrograde step, and is bound to lead to mistakes in classification owing to the absence of any apparent relation of the letters A and B with either positive or negative cases.

(2) The definitions of respiratory and non-respiratory tuberculosis are not free from criticism. One expects these definitions to be helpful to the extent that few, if any, occasions will arise when it will be impossible to classify a patient by their use. But such occasions are bound to happen when no provision is made in the definitions for including conditions other than those specified—for example, endo-bronchial tuberculosis. The difficulty would be overcome by substituting the words "a respiratory case includes . . ." for the words "a respiratory case should be. . . ."

(3) A "combined" case—e.g., with pulmonary and glandular tuberculosis—is classified as a pulmonary case, as at present. But if such a patient is found to have tubercle bacilli in his excised glands he will be classified as B, giving the impression that he is infectious in the same degree as a patient who is discharging tubercle bacilli in his sputum. The definition of an infectious pulmonary case is incomplete, like the general definition of a pulmonary case. The finding of tubercle bacilli should be more definitely related to the pulmonary lesion by specifying the situations where the bacilli will be regarded as evidence of their pulmonary origin.

(4) The definition of a class B case suffers from the further defect that it makes no provision for reclassifying a recovered case who comes on the dispensary register again after a period of years. According to the literal application of the wording, a person who had tuberculous cervical glands in childhood with tubercle bacilli in the pus from the glands, and who comes on the register with *any* tuberculous condition 20 years later, is to be called a B case. For the purposes of compiling uniform statistics this procedure may be very desirable, but the statistics themselves can hardly be helpful. I submit that a definition of a "return" or "restored" case is required, and that the classification of such a case should be based on the current findings and not on the bacteriological results obtained many years previously.

(5) The subsections of paragraph III of the memorandum are inconsistent. Subsection (2) states that respiratory A.s and B.s should be subdivided; subsection (3) states that they should be further subdivided. Yet there is only one basis of subdivision described—viz., into groups 1, 2, and 3. The meaning is clear enough, but the wording is confusing.

(6) The definition of "quiescent" does not make any allowance for variations in bacteriological control by different observers: some will rely on repeated slide examinations, some will prefer culture or inoculation methods. But, according to the definition, unless three consecutive monthly slides are negative, the case does not fulfil the criteria required for quiescence. Moreover the definition does not take account of the fact that a patient may not be able to produce sputum when required at monthly intervals, and it seems clear that it cannot be strictly observed as it stands at present.

(7) The classification "arrested" does not seem to serve any useful purpose. In practice it is never used to describe any patient, and rather than set down details for its interpretation I consider it should be abolished.

(8) Does the definition of a "recovered" case apply only to pulmonary patients? If it is intended to apply to non-pulmonary patients also, then it should be stated, as at present a non-pulmonary case can be written off as "recovered" after *three* years.

(9) Regarding the definition of "active case," I consider it unfortunate that, by implication, all patients not positive within the preceding three months may be taken to be classifiable as not active—i.e., quiescent. I am sure this is not the intention, but the wording is not so helpful as it might be.

(10) The use of the word "stationary" to denote a case in which the patient remains *in statu quo* appears unscientific and unnecessary, for if a patient was "quiescent" at the beginning

of the "stationary" period, he may continue to be described as quiescent rather than as stationary.

(11) Among the definitions not mentioned is the Ministry's own term "inactive" as used in the classification of mass radiography findings. I think it a pity that the opportunity has not been taken to make clear the implications of the use of this term.

(12) The inclusion of directions for the medical assessment of patients suffering from pleurisy has the appearance of an intrusion in a document dealing with the classification of patients suffering from tuberculosis. I consider that the direction to regard pleurisy as tuberculous unless proved otherwise is inconsistent with the facts (*a*) that less than half of the patients who suffer from pleural effusion ultimately develop pulmonary tuberculosis, and (*b*) that pleural effusion is frequently part of a primary tuberculous process. The requirement that cases of pleural effusion should be regarded, and presumably notified, as tuberculous will have repercussions in the matter of the notification of primary tuberculosis in general.

(13) The new Non-Respiratory classification will not show the part affected. The old classification was in four groups: (1) bones and joints, (2) abdominal, (3) other organs, (4) peripheral glands. It is desirable that the subdivisions of the old classification be incorporated in the new groupings.

(14) If the old method of classification is to be amended, let us make sure it is soundly based, because it will involve the reclassification of all the cases on the dispensary registers so as to afford comparison with previous years.

In issuing their memorandum the Ministry have no doubt acted on the advice of the Joint Tuberculosis Council, but it is regrettable that no opportunity was given to tuberculosis workers in general to express an opinion before the recommendations were forwarded to the Ministry.—I am, etc.,

F. C. S. BRADBURY,
Central Consultant Tuberculosis Officer.

Preston.

Artificial Insemination

SIR,—There can be few subjects which call forth more emotional (as opposed to intellectual) judgments than A.I.D. The letters from Dr. Eustace Chesser (May 24, p. 738) and Dr. Farquhar Murray (June 7, p. 826) are cases in point. The latter is so carried away by his disgust of the whole procedure that he does not present the facts quite as they are. The only donors I have ever met are unselfish and intelligent men who do not sell or barter their spermatozoa but who agree to give them, as they would blood for transfusion, to help those in need—i.e., equally unselfish and intelligent couples who, because of the husband's complete sterility, have been deprived of begetting, bearing, and rearing the children they earnestly desire, more often than not through no fault of their own. Dr. Chesser, on his part, paints a somewhat lurid picture of the formidable hazards surrounding those rash enough to indulge in A.I.D. He says he has abandoned the practice but omits the facts and figures that induced him to do so. For example, he does not tell us how many cases he has dealt with by A.I.D., nor how old the resulting children are; neither does he give any indication as to what proportion of his cases has ended in psychological disaster; he seems to infer that there are few, if any, good results. Possibly facts and figures are lacking and he has arrived at his conclusions on theoretical considerations only. His letter would have carried more conviction had he also painted the other half of the picture, which undoubtedly exists.

The marriage in danger of being wrecked by the smouldering resentment of the maternally inclined woman against her sterile mate and the profound sense of failure and regret which must be felt by any but the most insensitive husband: in my experience this is the situation which, unless resolved, besets two people with "formidable hazards." There are of course a number of ways out, and it lies within the doctor's sphere to try honestly and without prejudice or emotional bias to help such couples, should they consult him, to find their particular solution. The possibilities are: to be sufficient unto themselves and to sublimate in various directions; to part and start afresh; to adopt; or, finally, to secure a child or children by A.I.D. A small proportion may after careful thought choose this last, the husband conscious of his wife's strong desire to bear a child and preferring to fend for one that is at least hers rather than one that comes of neither of them. His sense of inferiority and of guilt tends to remain while the cradle is empty and is not, in my experience, replaced by jealousy of the child but by great tenderness towards it and towards a wife who has, in the sense that matters to him, kept faith; while she in her turn feels a lasting gratitude towards her husband for his generosity in allowing A.I.D. So far I have not met the unhappy situation Dr. Chesser so vividly depicts; quite possibly I have not dealt with so many cases as he has and my experience of the outcome of A.I.D. is therefore more limited than his. His warning will ensure a still more careful selection of cases. Finally I would suggest that it is early days to pass sweeping judgments in either direction. It is well to bear in mind that the demand for A.I.D., no less than for control of fertility, has come from the lay public. It is of prime importance that doctors should think about and weigh these things in the light of their special knowledge and experience, setting aside in so far as they can, or at any rate recognizing, their own particular emotional bias in the matter.—I am, etc.,

MARGARET HADLEY JACKSON.

Crediton, Devon.

Acid Drinks and Sulphonamide Therapy

SIR,—It is pertinent to ask the advocates of freely drinking of the fruit juice beverages by what processes the vegetable acids or their salts, citrates, etc., come to be passed off in urine so as not to increase its acidity. The acid part gets oxidized and the other parts also get oxidized, CO_2 and KHO or H_2O being end-results. The amount of oxygen required to achieve this end is not negligible. The citric acid molecule for its change must have added to it 9 molecules of oxygen; its molecular weight, given as 210.1, requires of oxygen 9×16, or 144. Where and how is the citrate to get it?

The bodily state in each case must be considered in regard to this important matter. It is of course the doctor's privilege to deal with this. The sulphonamides themselves do make some demands upon the respiratory functions, all of whose details, including of course the R.B.C.'s, may be affected; and in many cases the disease may be one directly affecting respiration. My colleagues in the eye specialty need not be told that prolonged or drastic degradation of oxygen supply and possibly the presentation of un- or imperfectly de-toxicated products is of importance to the retina and the lens. Others should be told.

The drinking of large quantities of water may be rather relished as an uncommon item, and if taken cold or even chilled or iced may, if thought advisable, send more of it to the kidney rather than the skin or lung for elimination. A lump of sugar in it used to be liked and would be welcome as a variant. Lemon and orange juice drinks are taken far too little diluted in many cases, and it might be wise to prescribe the actual dilution considered safe as well as the total daily allowance. In the sick there are limits to the capacity for dealing with excess in H_2O and CO_2, methaemoglobin, and the disease products and those due to our drugs. The wisdom of the ancients is still apropos: *Est modus in rebus! sunt certi denique fines. Quos ultra citraque nequit consistere rectum.*—I am, etc.,

ED. J. PRIMROSE.

Glasgow.

Nicotinic Acid Tolerance Test

SIR,—I read Drs. P. Ellinger and S. W. Hardwick's excellent paper (May 17, p. 672) and Capt. A. Erdei's letter (June 7, p. 822) with great interest. Both contributions suggest the intimate relationship of the functional state of the liver parenchyma to nicotinic acid metabolism, a problem elucidated mainly through the systematic work of Ellinger and collaborators in recent years. At the beginning of the war I had the opportunity of studying the physiology of the small intestine. I was able to submit evidence for the assumption that the gradient of absorption in the small intestine is to a great extent maintained by the catalysts of the intracellular respiratory enzyme systems. It is known that at least 3 water-soluble vitamins—thiamine, riboflavine, and nicotinic acid—are closely related to these catalysts, and it could be tentatively suggested that a deficiency in these vitamins and a liver "dysfunction" may be instrumental in the production of the sprue syndrome (Leitner, 1942). During subsequent years injections of crude liver extract (containing most of these enzymes) became a routine in the treatment of sprue.

Capt. Erdei's interesting experience that acute sprue symptoms were provoked by giving 1,800 mg. nicotinic acid daily for 5 days, and that the symptoms were quickly cleared up by subsequent massive doses of riboflavine, is a case in point. It also presents an interesting example of an imbalance of the vitamin B equilibrium. During recent years attention has been directed repeatedly to the importance of the interrelationship among the various factors of the B group of vitamins. It could be demonstrated that subclinical latent deficiencies might become manifest after giving large doses of one single crystalline vitamin of the group (Richards, 1945; Leiter, 1945, 1946, 1947). Another interesting feature of Capt. Erdei's case is that sprue could be produced experimentally by disturbing the vitamin B equilibrium—a fact which to my knowledge has not been reported before. For this reason it would be of great interest to have a more detailed description of the symptoms in his case.

Although a considerable number of minor symptoms due to the imbalance of vitamin B factors are frequently encountered, major disturbances appear to be comparatively rare. I should therefore be greatly interested to learn of any such cases.—I am, etc.,

London, W.1 Z. A. LEITNER.

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Folic Acid

SIR,—Dr. J. G. A. McSorley (June 14, p. 863) evidently misunderstood my letter in the *Journal* of May 24 (p. 740). I stated that folic acid, 10 mg. daily, was given plus a maintenance dose of liver weekly. Although intensive liver therapy was given for three weeks previously, the nervous disability was but slightly improved. After a few days of the combined treatment a marked and steady improvement followed. This improvement has been maintained and is progressing. The patient, a joiner, is able to walk a considerable distance without even the aid of a stick and work for several hours at his bench.

The spastic type of subacute combined degeneration of the cord has, I think, always been regarded as the least responsive to any form of treatment. It was the disappointment following liver therapy alone that made me try folic acid in addition, and the result has more than justified the action.—I am, etc.,

Birkenhead. CECIL L. FORDE.

Hypereosinophil Phase in Allergy

SIR,—In my first communication (June 7, p. 823) it was shown how blood hypereosinophilia proved to be one of the leading signs, pointing to allergy as a possible causative factor in a case of pruritus ani, a condition so far not considered as connected with allergy. Scepticism was expressed against this idea when a repeated blood count showed normal figures of 2% eosinophils. The "allergist" is well aware of quick and transient "organic" changes in allergic conditions. Swellings, catarrhal signs, local and blood hypereosinophilia come and go as quickly as spasms, and are also caused by the parasympathetic irritation which is at the root of allergic signs and symptoms, due to an almost inexhaustible variation of causative factors.

Seen in this light the positive findings appear of diagnostic value, whereas the negative are inconclusive, similar to a negative W.R. in syphilis.

Blood hypereosinophilia occurs in experimental anaphylactic shock as an expression of the parasympathetic irritation, together with the other signs of it. Clinically it is known to occur in allergy, particularly in bronchial asthma, in parasitic infections such as worms, in certain fevers during the "crisis," at the moment before immunity and recovery is setting in—e.g., in Weil's disease (infective spirochaetal jaundice)[1], in scarlet fever,[2] and in such conditions as Loeffler's syndrome, all now well connected with allergic reaction. Apart from this it is observed in Hodgkin's disease, a condition of unknown origin and pathogenesis. Otherwise response to "foreign protein" is a common factor, and in my opinion the probable cause of hypereosinophilia.

Authors agree that blood hypereosinophilia of 5% or more occurs in 35-55% of the allergic patients. More recently it has become a clinical custom in U.S.A. allergy clinics to do three weekly differential blood counts and to use the average figure obtained as expression of the eosinophil count. I am, however, of the opinion that this is not a suitable method, and that any observation of a "hypereosinophil blood phase" is the characteristic allergic response to parasympathetic irritation which we wish to take into account for our diagnostic considerations in allergic conditions, however transient it may be. Ups and downs in the figures may prove to be of prognostic value or may be due to the effect of therapy, but that has still to be established.

Among 100 L.C.C. hospital patients with bronchial asthma examined during a given period I obtained 0-4% of eosinophils (normal figures) in 44% of the patients, hypereosinophilia of 5% or more in 56% of them. The blood films were examined in the group laboratories. Among 100 private patients with bronchial asthma examined lately and also chosen at random normal eosinophil counts of 0-4% were observed in only 37% and hypereosinophilia of 5% or more in 63% of the patients. The blood films were examined by myself. The suspicion that this was due to a personal bias of the examiner was removed when an analysis of the counts revealed that the difference was due to a higher figure of patients with a hypereosinophilia of over 20% eosinophils. Changing figures in the same patient had been observed frequently before in reports and by myself during the course of observation.

Eosinophils per cent	In 100 L.C.C. Hospital Patients	In 100 Private Patients	Average in 200 Private and Hospital Patients
0—4%	In 44%	In 37%	In 40·5%
5—9%	In 36%	In 37%	In 36·5%
10—20%	In 18%	In 19%	In 18·5%
Over 20%	In 2%	In 7%	In 4·5%

All this suggested that the hospital patients, who had been under treatment before I saw them and had mostly been given adrenaline, did not show the high eosinophil counts so frequently because their parasympathetic irritation had been diminished by treatment and the "hypereosinophil blood phase" had been diminished or had disappeared for that reason. A clinical experiment proved this view to be correct. A boy came under private observation with bronchial asthma. A blood film was taken and 7 min. (0.45 ml.) of adrenaline solution 1 : 1000 was injected subcutaneously. Ten minutes later another blood film was taken and both were sent to a laboratory. The first blood film before adrenaline showed 13%, the second one after adrenaline 9%, of eosinophils. The asthma attack had subsided, but rhonchi were still present when the second film was taken. In another boy of 14 years with asthma the same experiment showed 9.5% before and 1% of eosinophils after injection of 7 min. of adrenaline, when asthma attack and rhonchi had subsided.

The "hypereosinophil blood phase" seems therefore to be the characteristic reaction to "allergic" irritation and to disappear with it. It is of diagnostic value, and preferable to an average estimate of three weekly repeated eosinophil blood counts.—I am, etc.,

London, W.1. E. M. FRAENKEL.

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Oxygen Poisoning in Man

SIR,—I feel I must answer certain points raised in Sir Leonard Hill's letter (June 21, p. 900). I would like to make it clear that, so far as I was concerned, the Admiralty provided the experimental facilities. The financial and other arrangements were not my affair, nor were they made known to me. Even if I had been aware of these arrangements I would not have presumed to acknowledge or discuss such matters, but would have left this to the "proper levels." This is an elementary Service procedure which most people will appreciate from personal experience. I am sure that Sir Robert Davis, the head of a highly progressive and successful industrial organiza-

tion, has no wish to be represented as a misunderstood back-room genius. He has financed and encouraged an enormous amount of research by eminent physiologists in the past, and the majority of their findings have been published in the appropriate journals. I myself was working under the Admiralty and I make no apologies for my acknowledgements.

With regard to technical points raised:

(1) Mixture-breathing apparatus was not employed by midget submarine divers, human torpedoes, divers, or frogmen. The types of mixture-breathing apparatus used by the "human mine-sweepers" was a counter-lung apparatus and an entirely new departure. It was developed by the Admiralty Experimental Diving Unit with the invaluable aid of Prof. J. B. S. Haldane and Dr. H. Haldane, who also carried out a large series of experiments.

(2) The details of the attack on the *Tirpitz* in Sir Leonard's letter are grossly inaccurate. The Admiralty, so far as I know, have not yet released the full technical account.

(3) When oxygen is breathed in a submerged decompression chamber, it is "in the dry," and therefore no symptoms would be expected in the times employed.

(4) When Sir Leonard read my reports to the Admiralty he should have noted that a full series of mouthpiece and alveolar samples was carried out and that no accumulation of CO_2 was demonstrated. The editorial pencil removed this detail from the article in this *Journal* owing to space difficulty. I cannot seriously entertain the suggestion that the operational and experimental mouthpiece divers of the recent war were not experienced or stable, nor that their breathing was apprehensive or abnormal.

(5) Bean's article in which he advances his theory of nitrogen intoxication is to be found in the bibliography of my article. He does not contradict Behnke's postulate, but offers an explanation of its mechanism on theoretical grounds. This remains to be proved or disproved.

Lastly, I would like to emphasize that my admiration of Sir Robert Davis and his organization remains unchanged and that I would greatly regret any friction which might have arisen as a result of Sir Leonard's letter.—I am, etc.,

London, E.C.1. K. W. DONALD.

Leprosy and its Problems

SIR,—In the leading article on leprosy (June 7, p. 813) you state that of the 2,000,000 lepers in the world 97.5% are Indian or African. The remaining 2.5% is made to cover the lepers in China, Japan, Korea, and the Philippine Islands, to say nothing of the large number in South America.

My own observations, recorded in my book on leprosy in China, put the figure in that country alone at 1,000,000, and I am now convinced that this is an under- rather than an over-estimate. I am afraid that the problem is a good deal larger than you allow for, and as the bulk of the victims in China are of the lowest economic level, the difficulty of supplying the new drugs for treatment is almost insuperable.—I am, etc.,

Bedford. JAMES L. MAXWELL.

Penicillin for Osteomyelitis in Childhood

SIR,—We welcome the confirmation (June 21, p. 900) from the Royal Hospital for Sick Children, Glasgow, of our experience that excellent results can be obtained in osteomyelitis of children by penicillin plus minimal surgery. This is also in line with the work of Prof. Ian Aird, and we believe that workers in another great children's hospital, that of Newcastle, have had similar results. We should be grateful for information from there and elsewhere.

In reply to three points they raise: (1) We did not use incision and primary suture ourselves, but would be very interested in what they consider the indications for it as opposed to aspiration. (2) We think the bone marrow should be left alone. We regard osteomyelitis as being like a cellulitis that is best left untouched in the early stages rather than a condition in which pus under pressure urgently requires relief, as in mastoiditis. (3) They suggest that we should not record cases which we believe to be aborted osteomyelitis. But surely this group is the most important of all, as a perfectly efficient medical profession would see that every case fell into it, instead of diagnosing most of them in the stage of invasion as "rheumatism." Also we would hardly class an abscess, whether originating in the soft tissues or not, as an aborted case.

The letter from Mr. J. Trueta and Dr. M. Agerholm (June 21, p. 899) is in a different category, and we can hardly accept it as a genuine attempt to increase medical knowledge. Nearly all medical papers, especially those written by several authors, contain obvious slips, and ours is no exception. In the summary it was said that "surgical treatment was confined to aspiration" without the note needed to bring this into line with the paper proper and the table that this did not apply to five cases rather different from the rest. Those accustomed to medical reading overlook such things, just as in the ordinary way we should not bother to comment on the fact that Mr. Trueta, in quoting our figures, substitutes 3 for 31 cases, under two years for under one year, 7% for 10% positive blood cultures, and twelve times for ten times the normal resistance to penicillin. Such minor errors have no effect on the argument.

The next point is more serious. Our paper attempts to summarize a mass of cases, many of the utmost complexity. Months of struggle or long pathological reports have been compressed into a couple of words. We would welcome analysis and questions on the series if the spirit of them were that of medicine rather than law or politics. But let us analyse the analysts:

(1) It cannot have escaped Mr. Trueta's notice that, of the five cases in which surgery other than needling was used, two were infections from intramedullary drips. He must know that in these there would be a skin wound and a superficial cellulitis to start with. They are not, as we point out, really the same as the ordinary haematogenous osteomyelitis at all. Two others were abscesses of the palate, as unsuitable for the primary suture he advocates as for our aspiration. In the fifth one we admit we ought to have explained that the bone was drilled by a junior under a mistaken impression of relapse after three weeks' penicillin treatment, without any effect except an apparent lengthening of the period of healing. The marrow was sterile at operation.

(2) They state: some cases "have had considerable bone damage—one after 11 aspirations . . ." This must refer to case 8, in which our statement that there was "much bone destruction and sequestration" obviously refers to the original condition, as it is followed by the words "Now sequestrum not evident. Regeneration." It is difficult to class this as a slip.

(3) They write, giving the suggestion of quoting us: "'Complete recovery' includes 'erosion of the head of the humerus, now delay in epiphysial development.'" We never used the words "complete recovery" but "complete restoration of function," which is something quite different. The word "now" makes it clear that the erosion of the head of the humerus was the original condition, which could not possibly result in anything but some delay in epiphysial development.

(4) They translate our statement that "movement was encouraged." into an advocacy of weight-bearing on bones that may not be able to stand it. To weight a homily against this rash practice they refer to the fracture in case 14 without mentioning that the patient was nine months old, and the fracture occurred before treatment started.

(5) They exclude two of our cases with one aspiration and negative local cultures, since they "presume" no pus was obtained. Yet pus was aspirated some days after penicillin treatment was commenced.

(6) They explain at length why aspiration should not work, without mentioning the undoubted fact that we and others have found that it does.

(7) They ignore the fact that in fourteen of our cases we have been able to dispense with surgery altogether.

(8) They refuse to consider the cases of osteomyelitis which we think the most serious—those in which the bony infection communicates with a joint—as osteomyelitis at all. Their pathology, according to which the infection invades the marrow from the joint instead of vice versa, would eliminate from the argument cases in which incision is notoriously unsatisfactory. We do not consider it true.

(9) On the subject of blood infections they remark that our cases had positive cultures far too long. We do not know exactly when the blood cultures became sterile, as we regarded it as unjustifiable to pester desperately ill children to find this out. But the remarkable thing is that Mr. Trueta and Dr. Agerholm "have not tested many cases" themselves and say vaguely that the "second culture has been sterile" without saying when this second culture was taken. As to the differences between our percentages of positive cultures and theirs, the one of us who has made a long study of this subject is convinced that the difficulties of avoiding staphylococcal contamination from the skin are much greater than is generally realized. He believes it is quite futile to compare series of these cases unless the technique is extremely accurate and exactly the same for both.

(10) On dosage they must have looked up our references and consequently know that our scale has been worked out by one of us at the request of the Medical Research Council in 1944 in the days of shortage of penicillin. We have subsequently found that though stepping up the dose improves laboratory tests it does not

improve clinical results, and we consider duration of treatment far more important than high concentration of penicillin. What better test could this dosage have stood than this series of unselected cases over a period of three years? Yet they can say that they "wonder how much has penicillin really affected this series." Our only reply to this is that the surgeons concerned wish to disclaim the implied but unmerited compliment.

Finally, let us say that our paper was written as the record of an imperfect but, we thought, interesting and encouraging piece of work. We did not wish to criticize the work of others nor to lay down principles of treatment, considering our experience far too small. But it is implied all through the letter of Trueta and Agerholm that we should have done better to have used the methods of incision and primary suture they recommend. Very well then, how and why? It seems to us that if we had done so all our cases would have had major operations, which some of them would have stood very badly. They would have large scars, many involving joints. Their joints would be stiffer and their muscles more wasted. On the analogy of Mr. Trueta's published cases, several of them would have discharging sinuses. What exactly has he got to urge on the other side?

We regret that in the absence of Mr. T. Twistington Higgins we have not been able to consult him on this letter, but we feel he would agree in essence with it.—We are, etc.,

DENIS BROWNE.
MARTIN BODIAN.

London, W.C.1.

Intestinal Fuso-spirochaetosis Simulating Cholera

SIR,—Menon in 1945 reported four cases of diarrhoea and severe pain in the abdomen, associated with the presence in the faeces of large numbers of *Treponema vincenti* and *Fusiformis fusiformis*. The following case report is of interest as it showed signs and symptoms suggestive of cholera, associated with intestinal fusospirochaetosis and responding to arsenical treatment.

CASE REPORT

A Hindu male railway porter aged 30 years was admitted to Lawley Hospital, Coonoor, on March 15, 1946, at 5.45 p.m. as a case of suspected cholera. The history given was that since 3 a.m. that day he had vomited several times and had a number of loose watery motions. He was admitted moribund, in a state of collapse. The pulse was imperceptible. The patient was very restless due to muscular cramps of great severity and was in a state of acute dehydration. He had not passed any urine since morning. On admission he was given adrenaline 1 ml. and atropine 1/100 gr. (0.65 mg.) subcutaneously, hypertonic saline 500 ml. intravenously, and essential oil mixture with kaolin.

March 15, 1946, 8 p.m.: Condition slightly better; pulse perceptible. March 16, 8 a.m.: Very restless; pulse failing. Hypertonic saline with glucose, 500 ml. I.V.; adrenaline and atropine repeated. 10 a.m.: Still very weak; drowsy; not passed urine. Hypertonic saline 500 ml. I.V. repeated; essential oil mixture repeated. 6 p.m.: Condition poor; pulse 132; not passed urine for last 38 hours. Hypertonic saline 500 ml. repeated.

Laboratory report on faeces: Microscopically, marked cellular exudate present. *E. histolytica* vegetative or encysted forms; Charcot-Leyden crystals and ova of intestinal parasites not found. Large numbers of *Treponema vincenti* and a few *Giardia intestinalis* vegetative forms found. Culture: *Vibrio cholerae* and intestinal pathogens not isolated.

In view of the successful therapeutic results previously obtained by the use of arsenical preparations in similar cases a dose of N.A.B. 0.3 g. was given intravenously at 6 p.m. with the following result: March 17: Condition much better; passed urine after 48 hours' anuria; pulse 78. Put on "stovarsol," one tablet twice daily. Discharged cured on March 26.

Inquiries regarding previous history elicited the information that the patient had recurrent attacks of diarrhoea, though never of such severity, during the previous two years. When seen eight months after this attack the patient reported that he had had no subsequent attacks and had been carrying on his normal work as a railway porter.

Points of unusual interest in this case are the severity of the symptoms, the persistence of anuria despite hypertonic saline treatment, and the response to a single injection of N.A.B.

The author is indebted to Lieut.-Col. M. L. Ahuja, M.D., D.P.H., I.M.S., Director, Pasteur Institute, Coonoor, for his advice and help, and to Rao Sahib Dr. K. V. N. Nair, Civil Surgeon, Coonoor, for his interest and kindness in furnishing the case history and progress report of the case.—I am, etc.,

I. G. K. MENON.

Coonoor, India.

The Teaching of Medicine

SIR,—It was with much interest that I read Dr. Edwin Bramwell's able defence (May 24, p. 741) of the *Edinburgh Postgraduate Lectures in Medicine*. He rightly insists that the day of the published clinical lecture is not passed and that "the clinical lecture affords . . . an opportunity to express and emphasize the art as contrasted with the science, an aspect of medicine which, as many clinicians will agree, often does not receive in our teaching nowadays the attention which it demands." It is singularly appropriate that the editorial of the May edition of the *Post-Graduate Medical Journal* discusses the question of clinical teaching as follows:

"The good teacher is born, not made, and however wide the opportunities in the shape of access to unlimited clinical material, however advantageous the freedom from financial embarrassment provided by the altered circumstances incidental to the new regime, when once the provisions of the Act are implemented, it will always be true that the value of his teaching will depend mainly on his personality and on his power of keeping contact with his students and of anticipating their individual difficulties with a readiness to meet the pupils on their own ground. This quality has been exemplified at its best in the great teachers of the Edinburgh School about the middle of the last century, the period at which, perhaps, it may be said that that school was at its zenith. It may be observed here that these men, although not fettered by any hard and fast regulations in respect to private practice, were appointed primarily to their several posts in virtue of their fitness as teachers, and that the discharge of their functions in this respect was regarded by the School and University as a first duty. It is, however, pertinent to note that those of them whose success in this academic field was outstanding appear to have enjoyed an equal reputation among their private patients as men whose practical advice was to be valued, and indeed it was for this reason that it was sought and that their success in the ordinary sense of the word was assured."

Again, in his presidential address to the Section of Medicine of the Royal Society of Medicine, Dr. Maurice Davidson states that "medicine to-day is at the cross-roads. Like other human activities it is being stultified by unrelated knowledge, and like our entangled civilization as a whole it is losing to some extent the power of judgment, the virtue of discernment, the faculty of ascertaining truth by comparison of facts and ideas." With the outlook that has crept insidiously into our teaching schools to-day not only is there a very real danger of losing this faculty, but the students are being so herded into watertight compartments by purists with little or no clinical training that they fail to appreciate that it is just that clinical research at the bedside that is the most vital part of their education. Instead of walking the wards they are apt to be found wandering vaguely amidst a maze of cells. As we look back across the years to recall some of those lesser known teachers of our student days we must be greatly impressed not merely with what they taught us, but especially with how they taught us to think and, not least, to feel. These were the men who presided at the autopsy and correlated the clinical findings with just that broad general knowledge of pathology that was necessary for the better understanding of the patient, who existed as a human being and not as a piece of mouldy cheese.

The great teaching hospitals with their mighty tradition still maintain their reputation as centres of pregraduate teaching, yet, because they have succeeded in being only distinct instead of "distinct and yet united" under the wise guidance of their own clinical directors elected by themselves, medicine has been more and more encroached upon by an academic tide which forces the student to retire from the bedside into a world of books in order to cram for examinations which are often far removed from the practical world in which he is preparing to enter. One big correcting influence here would be that his work and standing throughout his career as a clinical student should count more in the way of marks than the final examination. What a pity, too, that he is not apprenticed to a good general practitioner during some part of his clinical course.

The Goodenough report on postgraduate education makes it clear that London has failed to attract as many postgraduate medical students even from the British Commonwealth as have centres on the Continent of Europe or in the United States of America. The main cause, it says, "As Sir William Osler pointed out as long ago as 1911, has been lack of organization and cohesion. The facilities are there, men of outstanding distinction in their various subjects are there, but the organization

has remained deficient despite the special efforts made to improve it during the period between the two wars." Actually, any lack of organization which exists clearly results from the lack of cohesion, which in turn depends upon too much of the petty parochialism that pervades the medical world throughout the country to-day. One of the best ways of overcoming this would be to have an interchange of teachers from the various medical schools in the British Isles, and later (as has already been instituted in other scholastic circles) from the United States of America as well. The stimulating effect of this contact would be remarkable in itself and not least a broader and more fraternal concept of medicine would be engendered.

Though the statement that the really great clinical teacher must be born is doubtless true, the production of the average good clinical teacher is the all-important aim in preparing the foundation for this work. Not only must he be chosen from that point of view, but the special system of education which is now being adopted should include a broad cultural training, and this is most important, for it takes much more than a good mechanic to make a good physician.—I am, etc.,

Bristol. FREDERICK SUTTON.

Planning for Health

SIR,—May I strongly support Dr. Learoyd's protest (June 7, p. 827) against the anonymity of planners in general and of those in Norfolk in particular? I myself took boys of the 1st Litcham Scout Troop camping on his Diglea Camp at Snettisham Beach before the war, and to suggest that anybody's health could be injured by camping there is so ridiculous as to border on the suspicious. It must be one of the healthiest sites in the country.

I have ascertained that the planning officer's bombastic sentence quoted by Dr. Learoyd—a sentence of death to many a summer holiday—emanated from the County Offices, Norwich, and it is therefore pertinent to ask whether the county M.O.H. or any of his staff took part in suppressing this well-established camp on health grounds. If so, did they act on hearsay and local reports of non-medical men, or did they actually visit the site? If the latter, what was the date of visit, where can one see a copy of their report, what was the camping experience of the M.O. concerned, and who pulled his leg and misinformed him that the land was liable to flood? If this sounds like a questionary, may one not put the boot on the other leg for once?—I am, etc.,

E. Dereham, Norfolk. ERIC PUDDY.

Medicine in the United States

SIR,—I have just had the opportunity of visiting some medical and endocrine centres in the U.S.A., and venture to record very briefly a few outstanding impressions. Interest in the welfare of, and friendship for, Great Britain is enormous. Everywhere I went, and especially at the Annual Meeting of the Association for the Study of Internal Secretions, the cordiality, warmth of greeting, and reception were only interpretable on the basis of an individual being privileged to act as a channel of communication for Anglo-American friendship.

In my own field of endocrinology the United States constitute a vast field of amazingly fertile activity, and the current investigations are of great interest and originality. At the Massachusetts General Hospital and the Memorial Hospital, New York, I saw several cases of thyrotoxicosis treated by radioactive iodine given in a single dose by mouth. The eight-day isotope is now used and comes by air from a central station at Tennessee. The results are conclusively successful in exophthalmic goitre and in toxic adenoma, although the large nodular goitres with pressure symptoms are still thought more suitable for surgery. In simple thyrotoxicosis the goitre ceases to be palpable, and there is considerable shrinking of a toxic adenomatous goitre. Results in malignant thyrotoxic goitres are less satisfactory, as in some cases both the primary growth and the metastases may fail to "take up" the radioactive iodine. It is unlikely that the method will be generally used for some years, as the possible development of late effects from radioactive substances is not yet ascertained. As yet no evidence of such untoward effects—e.g., induced malignancy—is forthcoming.

In general, hospitals of the big cities tend to be very large and imposing, and, as many have been built within the last thirty years, they contain exceptionally adequate laboratory and research accommodation. Even so, in some cases the latter is not sufficient to meet the progressive encroachment of the basic and ancillary sciences on medicine. One of the most attractive and efficient units I met with, however, is the Peter Bent Brigham Hospital, of Boston, with only 250 beds.

A welcome feature, by no means unknown in this country, is the close association between physicians, surgeons, clinical pathologists, morbid anatomists, and radiologists. Sometimes collaborative sessions were organized on a weekly or bi-weekly basis, or a clinician would start off his rounds in a room adjacent to the post-mortem room, where pathological specimens from the previous day's surgical operations or from necropsies, if any, could be inspected under comparatively aesthetic conditions; and representatives of investigatory departments attended in suitable cases by arrangement. As an example of the ready availability of biochemical information I would point out that a reliable flame photometer permitted assays of sodium and potassium concentrations in serum and urine within a few minutes.

It should be pointed out, however, that in spite of the exploitation of all modern ancillary methods nowhere have I seen a greater awareness of the psychosomatic approach, or more kindness, sympathy, and individual attention and understanding, than that received by the patients in even the largest of the American hospitals I visited.—I am, etc.,

London, W.1. S. L. SIMPSON.

*** On radio-iodine some points made by Prof. Robley D. Evans, of the Massachusetts Institute of Technology, in his lecture at the Royal Institution, were summarized in a recent annotation (June 21, p. 894).—ED., *B.M.J.*

State Medical Services

SIR,—Without wishing to enter the lists either *pro* or *contra* State medical services, surely to attribute "a growing and already appreciable dearth of specialists" in New Zealand to the ten-year existence of a partial State medical service leaves out of consideration the effect of the war on the desire and opportunity for such training. A very considerable proportion of the younger men must have been in the Armed Services for a considerable proportion of the ten-year period and hence in large measure have been prevented from taking training that would qualify them as specialists. Furthermore, I believe I am correct in assuming that a large proportion of New Zealanders who do take higher qualifications do so in the U.K., and conditions existing from 1939 down to the present time were and still are such as to discourage private travel, to say the least. Another point, mentioned by Mr. Porritt (*St. Mary's Hospital Gazette*, 1947, **53**, 54), but not by Sir Ernest Graham-Little (May 3, p. 611) is the "immediate financial lure to the newly qualified." This is indeed a point, as the specialists are out of the State Medical Service and must presumably depend on fees. If they were in the Service at a higher rate of remuneration than G.P.s, the assured higher financial rewards would operate as an incentive to qualification as specialists. At the moment all that can logically be inferred is that New Zealand practitioners prefer an assured income in the State Medical Service to the uncertain income of private practice as specialists. This surely is of itself no condemnation of a State medical service.

Here in Canada, in Saskatchewan, we too have a partial State Medical Service. I understand there are many imperfections in that service. However, one point worthy of note is that there is a provision for regular postgraduate courses of study for those in the Service to enable them to become more proficient and to qualify as specialists if they so desire. Some, not all, specialists are in the scheme, which has only been in operation a short time. Here in Ontario the present trend is a little different. In a recent plebiscite of the medical practitioners of Ontario, specialist and otherwise, over 70% declared themselves in favour of prepaid medical and surgical care, and the Ontario Medical Association, which conducted the plebiscite, is taking an active interest in getting the scheme going, although it is not itself operating it. I am not of course confusing prepaid medical care with a State medical service, which are totally different things.

With Mr. Porritt's other conclusions I have no issue to take but accept them as observed facts, also the inference that they are due to the existence of a State medical service. I also of course accept as a fact his statement that there is "a growing and appreciable dearth of specialists," but not his nor Sir Ernest's inferences from that fact.—I am, etc.,

Auden, Ontario. S. J. NAVIN.

International System of Weights and Measures

SIR,—Dr. J. M. Hamill (May 17, p. 693) points out some obscurity in my previous letter (May 3, p. 613): may I attempt to clarify this? The criterion of significance that I intended to apply was that the number produced by the measurement should differ observably according to whether the unit used was the cm.³ or the ml. In normal laboratory practice the difference between cm.³ and ml. is so slight that it is quite submerged under the normal errors of measurement.

Dr. Hamill says, "The description of units of measurement should depend upon the units actually used . . ." But it is in practice frequently impossible to decide uniquely what units have been used. The unit to be attached must then depend on other considerations.

The practical processes of measurement differ radically for most quantities (the principal exceptions are mass and length, and the best examples the electromagnetic quantities) from that used in the definition. The fundamental definition often stipulates complicated processes which are impossible to perform accurately without elaborate precautions. Therefore actual measurements are made with reference to substandards or calibrated instruments. The former are either quite arbitrary or depend on a particular quality of a particular substance. All are ultimately measured at infrequent intervals by reference to the absolute definitions. It must be admitted, if practical metrology is to be possible, that a comparison with a substandard is a good measurement in terms of any unit in terms of which the substandard is known to the required accuracy.

Some of the substandards are officially recognized (examples of such are the "international ohm" and the "litre"). There is therefore the choice of more than one unit for the quantity. The substandard may either be considered as a mere stage towards the fundamental unit, or as a unit in its own right. Thus, though the immediate measurement of a volume may be a volume-volume comparison and be expressed in litres, it may, if desired, immediately be converted to *and quoted as* cm.³ or gallons on multiplication by the appropriate factors. Volume is by no means the only example of this ambiguity, and all others must be treated similarly, or individual treatment justified. Dr. Hamill has not attempted the latter, nor adopted the former.—I am, etc.,

Dorking, Surrey. HARRY V. STOPES-ROE.

Services Medical Examinations

SIR,—I note that the Minister of Defence stated in the House of Commons on June 4 (Medical Notes in Parliament, June 14, p. 868) that miniature radiography of the chest was carried out, in the Navy "when a person was entered, or as soon as practicable afterwards." *X*-ray of course detects many lesions that cannot be identified without its aid. All of the cases will have been examined prior to entry by National Service Medical Boards, and accepted. They will therefore have an unassailable claim for pension. It appears to me that a great deal of public money would be saved by conducting the essential mass radiography prior to entry.—I am, etc.,

London, N.W.1. H. SEARLE BAKER.

Infectious Ectromelia in Wild Mice

SIR,—I note that in the annotation headed "Vaccinia and Ectromelia" (May 24, p. 729) you state: "It is unfortunate that little or no evidence is available as to the natural occurrence of ectromelia in wild mice or other rodents." May I draw your attention to a communication by Dr. R. Whitehead and myself published in the *Journal of Pathology and Bacteriology*, 1933, 37, 253, and entitled "Outbreaks of Infectious Ectromelia in Laboratory and Wild Mice."—I am, etc.,

Cambridge. C. A. MCGAUGHEY.

POINTS FROM LETTERS

Land of Excuses

Dr. BRUCE WILLIAMSON (San Marino, California) writes: I received my M.D. here in California, and later took the Edinburgh Triple Board and the conjoint D.P.M. I practised near London from 1937 to 1941, at which time I was embodied into the Army, serving five years. With the background of this experience, taken together with first-hand knowledge of medical education and practice in the States, I might perhaps be forgiven for certain criticisms. Healthwise, England is a land of excuses for the backward conditions that prevail, excuses that never quite convince. . . . The disparity between the skill of the physician on the one hand and the primitive sanitation and poor nutrition on the other ever presents an unhappy paradox of failure on the part of the profession to accomplish its purpose. It would appear that the public has sensed its want and, like the Athenian democracy it is, is about to treat itself to the "health for all" schemes now purveyed by the Socialists. There would never have been serious support for the root and branch transformations upon which the Minister is now bent had there remained any material confidence in existing means for promoting the nation's health. In their defence the doctors could not point with any pride to comparative excellence of sanitation, nutrition, health education programmes, and the like. They blithely relegated such responsibility to the public health men, towards whom their attitude is competitive rather than co-operative. It is unbelievable how completely the conscience of physicians is allayed by the offices of that minute priesthood, the medical officers of health. If the new Minister now afflicts them, let them realize that never a robust, but rather a decayed, national health supplied him the power he wields. . . .

Tobacco

Dr. A. G. PANNET (London, S.E.6) writes: For over twenty years I have smoked tobacco purely for enjoyment without ever having regard to its therapeutic value. This unconscious drug-taking has so warped my judgment that I now value tobacco more than silver and pay, out of my taxed income to a Government apparently reluctant to receive it, an impost of some 3s. 5d. per ounce for the privilege of continuing my enjoyment—or should it be indulging my vice? I am sorry to learn that, on matters concerning tobacco, tobacco smokers are exceedingly untruthful, but your correspondent could, by taking a little trouble and examining the figures intelligently, verify from published figures that he was grossly in error in stating that one-third of the American loan is being spent on tobacco. In fact our expenditure on American tobacco for home consumption in the first year of the American loan will represent less than 7% of our total drawings on the loan.

A "Medical Certificate"

Dr. JAMES O'GRADY (Swinton, Manchester) writes: Dr. E. Rowland Williams (May 31, p. 785) refers to an objectionable form of "medical certificate" which is demanded by some insurance companies in connexion with claims under their "sickness and accident" policies. He rightly states that furnishing a reply to all the questions, many of which have no bearing on the patient's actual illness, gives the company a free report on the patient as a "life." May I suggest a simple remedy? All the questions which have no real bearing on the illness for which the patient is claiming compensation should be answered, very simply, "not relevant." At the same time the patient should be advised to threaten legal proceedings against the company if the legitimate claim is not met.

Pruritus Ani as an Allergic Condition

Dr. G. L. DAVIES (Hove, Sussex) writes: Is it not possible that the clue to the pruritus of Dr. E. M. Fraenkel's patient (June 7, p. 823) is contained in the words: "The skin proved to be allergic to skin disinfectants"? Some makers of toilet paper make much ado of the fact that their toilet paper contains some kind of disinfectant. . . . One imagines that the frequent application of such toilet paper to a more or less perpetually moist area such as the perianal region would be enough, in certain predisposed people, to set up a troublesome pruritus.

The "Pemmican" in China

Surgeon Lieutenant J. M. CLIFF (Hong Kong) writes: We all appreciated your efforts during the fuel crisis, which showed enterprise that is sorely lacking in other spheres of life at home. The first number of the Pemmican *B.M.J.* reached me in North China about ten days after it had left London.

Medical Library

Prof. F. C. PYBUS (Newcastle-upon-Tyne) writes: I would like to assure my friends, including the writer of the sympathetic note under "Nova et Vetera" in your issue of May 31 (p. 768), that my collection is intact and that the Sothebys' sale was of duplicates, etc.

Obituary

LEONARD FINDLAY, M.D., F.R.C.P.

Dr. Leonard Findlay died at the age of 69 at his home in Surrey on June 14; and by his death British paediatrics has lost one of its outstanding physicians and a pioneer in the modern methods of investigation into the diseases of children.

Born and educated in Glasgow, Dr. Findlay came of a family which had contributed much to the cultural life of his native city. He graduated in 1900 and proceeded M.D. four years later. Early in his career he became specially interested in paediatrics and soon came to devote his whole time to this special branch of medicine. He was admitted a Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow in 1914. In 1919 he was appointed to the newly created lectureship in medical diseases of infancy and childhood at Glasgow University, and in 1924, when the Samson Gemmell Chair of medical paediatrics was established, he was the first to occupy it. In 1930 he resigned in order to carry on a consulting practice in London. He then became physician to the department of children's diseases at Radcliffe Infirmary, Oxford, and to the Princess Elizabeth of York Hospital for Children. He was elected F.R.C.P. in 1936.

Dr. Findlay was an eminent clinician trained in the old school, where one's powers of observation were regarded as of more importance than a newfangled test. Yet there was no one more ready to adopt recent advances than he, and he remained until his retirement an exponent of modern medicine. His contributions to medical knowledge were important and numerous and gained for him an international reputation. In association with the late Prof. P. Noel Paton he published an extensive series of articles on tetania parathyreopriva and also a special report for the Medical Research Council on poverty, nutrition, and growth. It is for his writing on rickets, however, that he will be best remembered, and although, as it turned out, his theory was not substantiated, he deserves credit for having stimulated an interest in a disease which has now all but disappeared from our large cities. He published books on congenital syphilis and rheumatic infections in childhood, and re-wrote John Thomson's *Textbook on Diseases of Children*.

Dr. Findlay was a past president of the British Paediatric Association, an honorary fellow of the Medical Society, Budapest, and a corresponding member of the Paris Society of Paediatrics. He was an honorary member of the American Paediatrics Society and a director of the Child Welfare League of Red Cross Societies at Geneva. He had been a member of the British Medical Association for forty years and was president of the paediatrics section at the annual meeting in 1924. As a teacher and colleague, he was most stimulating. Students owe much to his wisdom in establishing paediatrics in the University of Glasgow as a compulsory course and laying the foundation for its wider appreciation as an integral part of the training of doctors. In the wards he was always full of enthusiasm and ready to impart his knowledge to the juniors. He dearly loved an argument, and often, it seemed to some of us, was not particular on which side he argued. Nevertheless, his facts were well marshalled and especially at the bedside his knowledge and wisdom stood out.

We regret the passing of this engaging personality, and those who knew him best will always remember him as a kindly sympathetic man at heart and be grateful for the help and stimulation he gave us. To Mrs. Findlay and his two daughters we extend our sympathy.

CECIL WALL, D.M., F.R.C.P.

Dr. Cecil Wall, consulting physician to the London Hospital and to the Brompton Hospital, and a distinguished medical historian, died at his home in London at the age of 77 on June 19.

Reginald Cecil Bligh Wall came of a medical family. His grandfather was Dr. A. B. Wall, and his father was in practice in Bayswater. His mother was the daughter of James Luke, P.R.C.S., F.R.S. Educated at Bradfield College, at Queen's College, Oxford, where he was Fitzgerald Exhibitioner, and at the London Hospital, he graduated B.M., B.Ch. in 1898, proceeding D.M. in 1902. During his Oxford days he distinguished himself as a rifle shot, winning the National Rifle Association's bronze medal in 1891. He held resident posts at the London Hospital, and acted for a few years as physician to the Eastern Dispensary and the Poplar Hospital. He was then elected to the honorary staff of his old hospital and to that of the Brompton Hospital for Consumption and Diseases of the Chest. He was elected F.R.C.P. in 1908, and by this time had established himself as a consultant and a teacher. He became a member of the board of the faculty of medicine and of the board of advanced medical studies of London University. He was also on the board of the Oxford medical faculty and dean of the Brompton Hospital Medical School. An examiner in medicine at Oxford and in London, he was Bradshaw Lecturer in 1920 at the Royal College of Physicians and gave the Schorstein Memorial Lecture at the London Hospital in 1928. His Thomas Vicary Lectures at the Royal College of Surgeons in 1935 formed the basis of his *History of the Surgeons' Company*. Published in 1937, this book dealt with the history of the Company from 1745 to 1800. The subject had been covered previously in Sir D'Arcy Power's 1886 edition of *South's Craft of Surgery*, but Dr. Cecil Wall brought to light a great deal of additional material from the manuscript minute and account books of the Company. His purely medical writings are less well known and were mainly on diseases of the chest and on chorea. He was a member of council of the National Association for the Prevention of Tuberculosis and a trustee and member of council of his old school, Bradfield College.

Cecil Wall became the official archivist to the Society of Apothecaries after he had passed the Master's chair in 1932–3, as his father had done before him. Here again he devoted much of his time to the study of the Society's original records. In 1932 he published his account of "The London Apothecaries: their Society and their Hall," which formed part of his wider studies of the relations between barbers, surgeons, apothecaries, and physicians, and the systems of licensing in the eighteenth and nineteenth centuries. Some of the results of these researches were summarized in his Fitzpatrick Lectures in 1944. He was the first historian to give a full account of the Lambeth degrees in medicine, and here, as in his other work, all his findings were based on study of contemporary manuscripts in the possession of the Royal Colleges and the Society of Apothecaries.

Dr. Cecil Wall had been a member of the British Medical Association for some thirty-five years. He was vice-president of the section of tuberculosis at the annual meeting in 1928, and he served later on the committee on the relation of alcohol to road accidents. He represented the Society of Apothecaries on the General Medical Council from 1932 to 1940. He married Dorothy, the daughter of H. Innes Fripp, and had one son and two daughters.

F. HOWARD HUMPHRIS, F.R.C.P.ED.

Dr. Francis Howard Humphris, the radiologist, died at Bath on June 17 at the age of 81.

Frank Humphris was born at Croydon in 1866 and educated at Highgate School. He was a student at Edinburgh University and at University College Hospital. He took the conjoint diploma in 1895, and for the next three years he worked as a tutor at Brussels University, where he proceeded M.D. In 1900 he was elected a Fellow of the Royal College of Physicians of Edinburgh, and for ten years he was in practice in Honolulu. At this time he became president of the Hawaiian Territorial Medical Society. Returning to London in 1908, he was for six months clinical assistant in the *x*-ray and electrotherapeutic department of the West London Hospital. He served in the R.A.M.C. with the rank of major in the first world war and was mentioned in dispatches. Towards the end of the war he was with the Egyptian Expeditionary Force, reorganizing the radiotherapy departments of military hospitals in that theatre. In 1920 Dr. Humphris took the Cambridge diploma in medical radiology and electrology, and he was on the consulting staff of the East and West Molesey and Hampton Court Cottage

Hospital. He did a great deal of work for the St. John's Clinic and Institute of Physical Medicine and was a Commander of the Order of St. John of Jerusalem. He was on the staff of Christ's Hospital and was the author of three books on electrotherapy.

Dr. Humphris had been a member of the British Medical Association for over fifty years. He was a representative at annual representative meetings on no fewer than ten occasions, and he was at one time chairman of the Westminster and Holborn Division. He had been president of the Irish Medical Graduates' Association, and he was also president of the Brussels Medical Graduates' Association. A past-president of the Hunterian Society, he was also a member of the Roentgen Society and of the West London Medico-Chirurgical Society.

L. K. writes: This is just a personal appreciation of the man and his charm. Frank Humphris went through life with a constant smile on his face, which smile he was willing to share with all his many and varied friends. He vividly and buoyantly often expressed, and gallantly acknowledged, his gratitude to life itself. I possessed for years his friendship, and I found his personality irresistible. As a host he was second to none—his great delight in life was "throwing a party." His concoctions —he called them "cocktails"—served in enormous glasses, were ever puzzling in their make-up, with spices from the plains of Arabia, curious and exotic fruits from the shores of Honolulu, all mingled with unheard-of liqueurs. They were baffling in character; they were potent beyond words. As a chef, too, there was nothing to teach him. He delighted to help a lame dog over a stile, and in his hey-day he helped many, and gave generously. As a "raconteur" he was hard to beat, at his clubs and elsewhere, and he was a good mixer. He certainly was born to smile at life, and to move "light-footed towards the twilight." *Heureux qui, comme Ulysse, a fait un beau voyage.*

Dr. CHARLES WITTS, who died at the age of 62 on April 11, was educated at Hereford High School and received his professional training at Guy's Hospital. He held a number of hospital appointments in London until the outbreak of the first world war. As a captain, R.A.M.C., attached to the H.L.I., he served in France, was awarded the M.C., and was taken prisoner in the early months of 1918. He settled in practice in Edgbaston, Birmingham, and from 1939 he served on a medical board for national service and on the pensions board. A man of considerable clinical skill, of sound judgment, and of terse wit, he was popular among his colleagues both at the medical boards and in the district.

Dr. WALTER HENRY BRAZIL died on May 3 at his home in Coventry. Dr. Brazil was born at Chorley, Lancashire, and was educated at Preston Grammar School and at Owens College, Manchester. He took the B.Sc. there and graduated M.B. in 1889, proceeding M.D. two years later. He then undertook a long voyage to Japan before starting in general practice in Bolton, where he worked for some years before moving to Coventry. He had been a house-surgeon at the Manchester Royal Infirmary, and resident medical officer at St. Mary's Hospital, Manchester, and it was during this period that he contributed a first short article to our columns in 1889. Dr. Brazil was one of the best known practitioners in Coventry, and apart from his work his principal interests were in music, antiques, and the construction of model boats. He had been a member of the B.M.A. since 1890, and was chairman of the Coventry Division in 1927–8.

Dr. JOHN SMALLEY DOCKRAY died at Bournemouth on May 27, aged 76 years. He graduated B.Sc. in 1890 and took the degree of M.B., Ch.B. with first-class honours at Manchester in 1897, proceeding M.D. a year later. He then joined an old-established practice in Bishop's Stortford, Hertfordshire, and continued his work there until 1926, when he was succeeded by his son, Dr. J. Vernon Dockray. His outstanding ability and strong personality, combined with a handsome and dignified mien, led to the building up of a large general practice which soon included many local appointments, among them that of physician to Bishop's Stortford Hospital. He was a member of the British Medical Association for twenty-five years, and was acting honorary secretary of the Hertfordshire Branch in 1930 and president in 1931–2. He was the representative at the A.R.M. each year from 1929 to 1935. Dr. Dockray was one of the original members of the Hertfordshire Insurance Committee, on which he served for twenty-five years and acted as chairman for a period of four years. In addition, he was a member of the Urban District Council from 1904 to 1937 and again from 1940 to 1944. He was also for several years a member of the Hertfordshire County Council and a county magistrate, and he took an active part in furthering the interests of the local Conservative Association. On his retirement from active practice he lived in Bishop's Stortford and latterly in Bournemouth. He is survived by his wife, who nursed him devotedly during a steady deterioration in health, and by his son, who is now in practice at Stradbroke after a long period of war service.

Medico-Legal

THE LIMITS OF DENTAL PRACTICE

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

Dentistry, unlike medicine, is restricted to registered practitioners. The Dentists Act, 1921, section 1, prohibits the performance of any such operation and the giving of any such treatment, advice, or attendance as is usually performed or given by dentists, and also lays down that any person who performs any operation, or gives any treatment, advice, or attendance in connexion with the fitting, insertion, or fixing of artificial teeth is deemed to practise dentistry. A shop assistant, a dental mechanic who was not on the Dentists Register, told a customer that her teeth were all the same size and looked too artificial and could be improved. She suggested that the customer should exchange the teeth, and offered to supply six plastic teeth for three guineas and gold filling for other teeth to take away the artificial look. The Dental Board prosecuted her for unlawfully practising dentistry and her employers for aiding and abetting her. The Southport justices found that she had not practised dentistry, and the Board appealed to the High Court.[1]

The Board admitted that a dental mechanic may, without committing any offence, repair a denture which is brought to him. Lord Goddard, Lord Chief Justice, said that it obviously followed that he may make a repair which involves replacement of teeth affixed to the denture. There is no reference to a "denture" in the section. He could not think that because a dental mechanic said to a customer that her looks could be improved if her teeth were not all the same size and offered, not to make a denture, not to interfere with the existing denture, but to replace teeth on the denture with others of a different colour or size, the mechanic was infringing the section. Mr. Justice Atkinson recalled a case[2] in which an unregistered person had made and fitted a set of teeth and sued for their value; the court had held that for an infringement of the law as it then was the operation, attendance, or advice must be directed to the condition of the mouth and to the treatment of the living person; the law was not broken by something done upon a set of false teeth. Since that decision the definition of the offence had been enlarged, but the meaning of "operation" and "advice" had not been extended. If Parliament had intended to make it an offence to work on an existing denture, it would have put appropriate words in the Act. The words "in connexion with the fitting, insertion, or fixing of artificial teeth" meant the doing of these things in connexion with the mouth itself. Merely altering an existing denture was not covered by the section. Whether advice was given was a question of fact in each case. The shop assistant had merely suggested that there should be an alteration in the denture, and there was evidence to justify the conclusion of the magistrate that she had not given advice. Mr. Justice Oliver, agreeing, said that he would have come to a different conclusion if the magistrates had found that any part of the fitting to the patient's mouth was to be affected by the advice given, but they had not.

The line limiting dental practice therefore seems to lie at the limit of the patient's person. Presumably an action which requires the patient for its performance is dental practice, but one which merely requires the denture is not.

[1] *Twyford* v. *Puntschart* (1947) 1 All E.R. 773.
[2] *Hennan* v. *Duckworth* (1904) 90 L.T. 546.

Medical Notes in Parliament

PENICILLIN BILL

The Penicillin Bill was considered in Committee in the House of Commons on June 18. On Clause 1 Mr. JOHN EDWARDS, Parliamentary Secretary to the Ministry of Health, moved to insert a proviso intended to meet the criticism that undesirable nursing homes not carried on under professional supervision might administer the substances or preparations to which the Bill applied. Answering Mr. R. S. Hudson, Mr. Edwards said he understood that "direction" meant instructions usually given in writing but which might also be given by word of mouth. The amendment was agreed to.

Mr. DEREK WALKER-SMITH moved to leave out paragraph (f) of Clause 1, which provided that penicillin would be available to any Minister of the Crown or Government Department. Mr. EDWARDS resisted the proposal, and it was defeated by 146 to 42. The House then agreed to an amendment indicating in what circumstances the substances or preparations covered by the Bill might be dispensed more than once or more than three months after the date on which the prescription was signed. It brought the provisions for prescriptions covered by the Bill into line with those for poisons under the Poisons Rules.

On the motion that the Clause as amended stand part of the Bill, Lord HINCHINGBROOKE said housewives under the Bill were denied the opportunity of going to a chemist's shop and securing penicillin as a right, yet a Minister of the Crown had that right.

Sir HARTLEY SHAWCROSS said that where the phrase "Minister of the Crown" was used in the Bill what was intended was a Minister of the Crown not acting privately but for the Crown, as head of his department. Mr. LINSTEAD asked whether the Attorney-General could name any Minister whose need of penicillin for the purposes of his department would not be met by the words "Government Department" alone? The Clause as amended was then ordered to stand part of the Bill.

"Secret Remedies"

On Clause 2 Mr. CHRISTOPHER SHAWCROSS moved to insert the words "medicinal substances" and thereby to enlarge the control given to the Minister of Health beyond the present range of antimicrobial organic substances produced by living organisms. He said control should extend to such other medicinal substances as the Minister after consultation with the Medical Advisory Council might prescribe. The Minister should be given control over all other medicinal substances which might be exploited in the way penicillin would be exploited if it was not controlled. Although he had said on Second Reading that the patent medicine industry was probably the largest and most harmful, and certainly the most shameful, racket ever organized by private enterprise, that remark was not meant to be a criticism of all patent medicines. What he attacked were the quack remedies like iodine belts and penicillin lipsticks. He hoped the Minister would make a statement on the Report Stage or later to show whether he would take control of a major evil which had never properly been dealt with by Parliament for the last thirty years. He recalled the famous *Secret Remedies* published by the British Medical Association. More recently in Lancashire, a county where this racket was rife, Prof. Henry Cohen had in public speeches and writings campaigned against this devastating evil. Still more recently a report drawn up by the Pharmaceutical Society had been presented to the Minister of Health by Mr. Linstead and was under consideration. Although the report as a whole was confidential, extracts had been published by the Pharmaceutical Society and showed that this was a topic which should be dealt with urgently.

Mr. J. EDWARDS said there were still widespread abuses connected with proprietary remedies which ought to be checked, but those substances were in a different category than the ones which the Bill sought to control. The substances covered by the Bill might give rise to serious danger to the general public if maladministered whereas undesirable proprietary remedies were not dangerous to the public at large. While Mr. Bevan was favourably disposed to further legislation dealing with proprietary remedies there was no prospect of early action on this point. Mr. Edwards then moved to insert a proviso that where the regulations prescribed a substance produced by living organisms they might include any substance of identical or similar chemical properties which was not produced by living organisms. The amendment was accepted and the Clause as amended was ordered to stand part of the Bill.

On Clause 4 Mr. R. S. HUDSON pointed out that the Bill said penicillin had the meaning assigned to it by the regulations for the time being in force under the Therapeutic Substances Act, 1925. He asked why penicillin should not be defined in the Bill itself.

Mr. EDWARDS admitted that he could not produce the definition at present in use. Definition by reference to another Act was a routine practice in the definition of substances and was also used in order that it could be altered as scientific knowledge on the substance changed. The words in the Bill contained a mechanism by which these therapeutic substances could be redefined. After further discussion Mr. Edwards read the definition made in accordance with the Act of 1925:

"Any anti-infective acid produced by *Penicillium notatum* whether obtained from *Penicillium notatum* or not, any salt or derivative of any such acid and any solution containing any such acid, salt, or derivative, being an acid, salt, or derivative, or a solution thereof, prepared for parenteral injection."

The Committee then agreed to the amendment proposed by Mr. Edwards, and Clause 4 as thus amended was ordered to stand part.

Clause 5 (Application to Northern Ireland) was also ordered to stand part with an amendment proposed by Mr. Edwards which provides that the Ministry of Home Affairs for Northern Ireland shall have power to enforce the Act and for that purpose to employ the inspectors under the Pharmacy and Poisons Act, 1925. Clause 6 was ordered to stand part of the Bill without amendment and the House agreed to a new Clause empowering the Pharmaceutical Society of Great Britain to enforce the provisions of the Bill and for that purpose to employ their inspectors. Mr. Linstead pointed out that in Scotland the actual prosecution would be by the Procurator Fiscal although the inspectors could obtain evidence.

After further discussion the Bill was reported as amended. A motion to adjourn the debate was defeated and Mr. Edwards moved the Third Reading. This was agreed to.

Universities and Colleges

UNIVERSITY OF OXFORD

In a Congregation held on May 1 the following degrees were confirmed:

B.M.—E. G. Walsh, N. V. B. Marsden, R. E. A. Hansen, J. F. W. Redwood, *C. E. M. Wenyon, *G. B. Rooke, *C. G. Elliott, *Rachel F. Shackleton

* In absence.

In a Congregation held on June 7 the degree of D.M. was conferred on Margaret M. Pickles.

R. V. Coxon, M.D., has been appointed Betty Brookes Research Fellow for a period of three years from Oct. 1.

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated:

FINAL M.B.—*Part I (Surgery, Midwifery, and Gynaecology):* J. H. Angel, A. Brook, M. A. J. Browne, D. S. Craig, R. Cremona, A. F. Crick, J. H. Cule, M. de B. Daly, J. G. Goodhart, N. R. Greville, E. H. Griffiths, J. Haimovich, N. H. Harris, J. G. Harrison, D. R. Harrocks, E. H. Hemsted, F. G. Herman, O. E. F. Hodgson, G. C. Hoffman, P. S. Hollings, K. D. Hopkirk, S. H. F. Howard, D. J. Howell, P. E. Hughesdon, J. H. Inskip, J. A. C. James, A. H. Jones, B. T. Kieft, R. V. Knight, M. H. Lessof, L. Linder, J. A. McDonald, L. E. McGee, T. R. Maurice, T. H. Morgan, G. C. Myddleton, H. R. Odlum, B. G. Parsons-Smith, F. G. Pattrick, I. C. Peebles, G. S. Plaut, J. Prestt, R. C. Read, C. S. C. Roberts, L. C. Robson, P. H. A. Sneath, F. C. Stallybrass, R. A. Stanger, G. Stanley Smith, I. W. Stoddart, D. B. Sugden, D. G. Thompson, F. G. Tomlins, J. D. G. Turner, J. A. Tutton, J. H. B. Urmston, S. M. Vine, D. H. H. Walford, D. Walker, B. M. Watney, A. R. H. Worssam, P. M. Yeoman. *Women:* B. Jones, A. E. Perkins.

UNIVERSITY OF DURHAM

KING'S COLLEGE, NEWCASTLE-UPON-TYNE

E. G. Saint, M.B., B.S., has been appointed full-time research assistant in clinical medicine in the Nuffield Department of Industrial Health.

UNIVERSITY OF LEEDS

At a meeting of the Council of the University, held on June 18, J. D. Pickup, M.B., Ch.B., was appointed Tutor and Registrar in Paediatrics.

UNIVERSITY OF SHEFFIELD

At a meeting of the University Council held on June 20 E. C. Allibone, M.D., M.R.C.P., was appointed Honorary Lecturer in Child Health.

The Council received the resignation of Dr. W. D. Wallace of the post of assistant tutor in medicine and lecturer in medicine to dental students.

No. 23

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 7.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947 (a)	(b)	(c)	(d)	(e)	1946 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	63	8	21	3	2	47	2	21	1	—
Deaths		—	2				2	—		
Diphtheria	196	22	46	18	7	304	16	85	27	15
Deaths	2	—	—	—	—	5	2	1	1	—
Dysentery	53	14	40	—	—	149	17	36	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	4	—	1	—	—	2	—	2	1	—
Deaths		—					—			
Erysipelas			24	10	2			29	9	2
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				18					27	
Deaths	71	9	15	7	3	49	1	8	7	2
Measles*	13,535	681	145	132	17	3,896	1073	652	48	12
Deaths	4	—	—	2	—	2	—	1	—	—
Ophthalmia neonatorum	75	1	21	1	—	60	5	8	1	—
Deaths										
Paratyphoid fever	16	1	1 (B)	—	—	2	1	—	2 (B)	—
Deaths	—	—	—	—	—	—	—	—	—	1 (B)
Pneumonia, influenzal	467	32	5	6	10	546	28	11	10	5
Deaths (from influenza)†	2	1	—	1	—	3	1	1	2	—
Pneumonia, primary			221	21				161	35	
Deaths		43		8	7		28		8	7
Polio-encephalitis, acute	2	—				—	—			
Deaths		—					—			
Poliomyelitis, acute	22	3	—	7	—	9	—	1	3	—
Deaths		—					—			
Puerperal fever		2	8		—		2	32		—
Deaths										
Puerperal pyrexia‡	128	4	10	—	—	134	13	17	—	—
Deaths		1					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	730	74	126	22	31	987	84	164	23	24
Deaths	1	—	—	—	—	—	—	—	—	—
Smallpox	7	—	—	—	—	3	—	—	—	—
Deaths	2			—	—				—	—
Typhoid fever	2	1	—	—	—	4	—	3	8	1
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	2,050	231	145	46	16	1,749	162	81	45	44
Deaths	11	2	4	3	—	9	—	—	2	—
Deaths (0–1 year)	473	67	75	38	15	322	41	48	30	17
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,707	851	595	189	112	4,116	570	534	178	126
Annual death rate (per 1,000 persons living)			12·4	11·9				11·8	11·4	
Live births	9,613	1404	1178	462	323	7,994	1155	980	449	257
Annual rate per 1,000 persons living			23·7	29·1				19·7	28·8	
Stillbirths	235	31	36			236	26	38		
Rate per 1,000 total births (including stillborn)			30					37		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Paratyphoid Outbreak

There has been a small outbreak of paratyphoid B infection in the mining village of High Spen, Durham. The first case was reported to the medical officer of health of Blaydon U.D. on June 5. This was a boy of 14 with a clinical picture of continued pyrexia, delirium, and some neck rigidity. There have since been 8 cases of proved paratyphoid B infection (4 in infants). The date of onset of the disease was probably between May 28 and June 1. Search for a source of infection showed milk to be the link connecting these cases. Specimens of faeces were taken from: (*a*) All contacts, (*b*) family of a milk distributor, (*c*) family of a milk producer, (*d*) all workers (male and female) on the farm, (*e*) family of an ice-cream merchant. Samples of milk, water, and ice-cream were also examined. All these specimens proved negative with the exception of that from the milk producer's mother. She had been found to be a carrier in 1932.

Investigation showed the probable route of infection to be the towels with which the cooler and churns had been wiped. Steps have been taken to sterilize the dairy and all utensils, and the old lady has been barred from living on the farm. Organisms from the carrier and from the cases are of the same phage type.

An interesting point, not yet fully investigated, is that a few cases which occurred in Gateshead earlier in the year were found to be of the same type, and apparently some of this farmer's milk went to a pasteurizing plant in Gateshead from which the cases had obtained their milk supply.

Smallpox

No further cases have been detected at Barnsley C.B. and Wakefield C.B. since the last removals on June 4, and the period of surveillance of contacts has now expired. It would be premature, however, to assume that the outbreaks in these districts have terminated.

The only focus of smallpox known to be active is at Bilston U.D., Staffs, and here the position is less satisfactory. A new generation of cases appeared on June 17, and since then 8 patients have been admitted to the smallpox hospital. The diagnosis is at present doubtful in 6 of these, and the unquestionable cases come from a single household not previously affected, nor under surveillance. Two other patients have been admitted to the Bilston Smallpox Hospital from Willenhall U.D. and Dudley C.B. respectively. If the diagnosis is confirmed the source of infection in the former is known to have been at Bilston, but the appearance of the disease at Dudley cannot at present be explained.

Poliomyelitis

There were 31 notifications of poliomyelitis in the week ending June 14 in England and Wales. This is higher than usual for the time of year, and an upward trend is expected. Prevalence has been unusually low since 1938, and, generally speaking, notifications have not risen above 30 a week, nor has a significant rise appeared until the end of July. Possibly the exceptionally warm weather at the end of May has had something to do with the present increase.

There have been 9 cases in Barrow-in-Furness and other cases in Bedfordshire, Worcestershire, and South London. As is usual, any direct connexion between cases has been the exception rather than the rule. About 15% of the cases are adults. Clinically there is considerable variation in severity, and cases of respiratory paralysis requiring treatment in an iron lung have occurred. At Barrow-in-Furness 2 pregnant women are involved, and 3 of the patients showed persistent meningeal signs as an outstanding feature.

Discussion of Table

In *England and Wales* further falls were recorded in the notifications of scarlet fever 156 and acute pneumonia 45. An increased incidence was recorded for measles 1,221 and whooping-cough 393.

The largest increases in the notifications of measles were in Essex 245, Lincolnshire 178, London 136, and Gloucestershire 129; the largest falls were Glamorganshire 113 and Somersetshire 86. Although the number of cases of measles fell in Glamorganshire, a rise of 168 was recorded for the remainder of Wales.

The only significant changes in the local trends of whooping-cough were increases in Lancashire 64 and Surrey 60. Small decreases in the incidence of scarlet fever were recorded in most areas of the country; the largest fall was Lancashire 35. The

chief feature of the returns for diphtheria was a decrease of 11 in Durham.

Notifications of paratyphoid were the largest for six months, and the 16 cases were distributed over ten counties. The only large centre of dysentery was London, with 14 cases. The distribution of the 7 cases of smallpox was Yorkshire West Riding, Barnsley C.B. 2, Wakefield C.B. 1, Staffordshire, Bilston M.B. 4.

In *Scotland* an increased incidence was recorded for acute primary pneumonia 50 and dysentery 21, while a decrease was reported for measles 32, cerebrospinal fever 25, and scarlet fever 21. The rise in the incidence of pneumonia was fairly widespread; in Glasgow the increase was 35. The largest increase in cases of dysentery was Edinburgh 11.

In *Eire* the only fluctuations of note in the returns were an increase in the incidence of measles 22 and a decrease in the notifications of diarrhoea and enteritis 15. Both these alterations in trend were mainly due to the experience of Dublin C.B.

In *Northern Ireland* infectious diseases were less prevalent and small decreases were recorded for most diseases.

Quarterly Returns for Scotland

The birth rate during the March quarter was 24.1 per 1,000. This is the largest rate for any quarter during recent years and was 6.4 above the average of the five preceding first quarters. Infant mortality was 63 per 1,000 registered live births and was 13 below the average for the corresponding quarters of 1942–6. Stillbirths were equivalent to a rate of 32 per 1,000 total births. The general death rate was 17.2 per 1,000, which was 0.9 above the rate for the first quarter of 1946 and 1.4 above the five years' average. The death rate from all forms of tuberculosis was 91 per 100,000, that from respiratory tuberculosis was 73; these rates were 9 and 7, respectively, above the rates for the March quarter of 1946 and 4 and 6 above the five years' average.

Week Ending June 14

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 833, whooping-cough 2,062, diphtheria 195, measles 10,796, acute pneumonia 380, cerebrospinal fever 49, acute poliomyelitis 31, dysentery 48, paratyphoid 12, typhoid 4. No case of smallpox was notified.

Medical News

School and Life

The Report of the Central Advisory Council for Education has been issued as a pamphlet with photographic illustrations entitled *School and Life* (H.M.S.O.: 2s. 6d.). Discussing the school medical service the report suggests for its improvement that, owing to the present shortage of medical personnel available, the medical examinations should be raised in quality rather than in quantity. It advocates more comprehensive supervision of school-children, including consultation between doctors and parents and teachers, together with better access to and keeping of medical records. Accommodation for medical inspection in schools should be improved, as well as facilities for treatment in hospitals and clinics. Commenting on the need for what it calls a positive approach to health, the report quotes a young engineer as saying that "the greatest need of all is not greater medical service but better health services in the form of wholesale extension of school playing-fields, swimming pools, fresh milk, fruit, meals, etc.," and adds that special training of doctors, nurses, and teachers is essential. It emphasizes elsewhere the need for suitable buildings, play-grounds, and meals, referring to Mr. Churchill's observation, "We shape our buildings, and afterwards our buildings shape us."

Harveian Society

The Harveian Society of London held the first Buckston Browne dinner since 1939 in the Royal College of Surgeons on Thursday, June 19. The President of the Society, Dr. Macdonald Critchley, received the many distinguished guests. Admiral of the Fleet Sir James F. Somerville proposed the toast of "The Harveian Society of London," and the President replied briefly. The toast of the guests was proposed by Sir Cecil Wakely, and Lord Moran and Sir John Anderson replied.

Haematological Research

Oxford University has accepted a grant of £50,000 from the Nuffield Foundation, to be paid over a period of ten years, to maintain a haematological research unit at the Medical School.

Society of Medical Officers of Health

At the annual luncheon of the Society of Medical Officers of Health on Friday, June 20, Sir Allen Daley, the President, proposed the toast of the guests. His speech, which was well received, was described by Mr. Aneurin Bevan, who replied, as "barbed by knowledge and delivered with intention." Mr. Bevan said that his present discussions with the representatives of the medical profession were being conducted in "a diminuendo of acrimony." He thought that in the future medical officers of health would form important links between the regional boards, the health committees, and the executive councils. Replying to the Minister, Sir Allen Daley made two points. He suggested that perhaps the time had come when the Society of Medical Officers of Health might be promoted to that select group blessed with the "Royal" designation. He also pointed out that any expansion of the work of medical officers of health would depend on up-to-date knowledge of morbidity in all diseases and not only in connexion with notifiable diseases.

Royal Sanitary Institute Prizes

The Royal College of Physicians has given the first of the Memorial Travelling Scholarships to the British Empire Nurses War Memorial Fund "as a tribute from the doctors to their colleagues the nurses." Lord Moran, President of the College, announced that the Royal College of Physicians was providing a scholarship of £350–£400 for seven years. Viscountess Mountbatten of Burma has offered a scholarship on similar terms "as a small tribute to the magnificent service rendered by nurses and midwives both in this country and throughout the Empire during the past years." The national appeal for the fund is for £250,000 to provide (after the furnishing of a nurses' war memorial chapel in Westminster Abbey) a fund for postgraduate travelling scholarships for nurses and midwives of the British Commonwealth and Empire. The nurses and midwives of the Empire have already raised £35,000 in the year since the fund was launched by the *Nursing Mirror*.

Encyclopaedia

The 1946 and 1947 volumes of the *British Encyclopaedia of Medical Practice* recording medical progress have been issued under the editorship of Lord Horder, together with the cumulative supplements for these years (Butterworth and Co.: 42s. for each pair of "Medical Progress" and "Supplement"). Authorities in the various branches of medical science provide critical surveys of the recent advances in Part I of the volumes of "Medical Progress," developments in pharmacy and therapeutics are reviewed in Part II, and in Part III abstracts from the recent literature are given. The "Cumulative Supplements" summarize the recent literature to bring the main body of the work up to date.

Empire Rheumatism Council

The Scientific Advisory Committee of the Empire Rheumatism Council has appointed a subcommittee to re-start the British branch of the Ligue Internationale contre le Rheumatisme. Dr. W. S. C. Copeman is chairman and national representative of the branch, Dr. G. D. Kersley treasurer, and Dr. Oswald Savage secretary. The European branch of the Ligue will hold a congress at Copenhagen on Sept. 3–6, under the presidency of Prof. Cai Holten, and the American Rheumatism Association will sponsor an international congress for rheumatic diseases in the U.S.A. in 1949. Those wishing to become members of the British branch of the Ligue should apply to Dr. G. D. Kersley, 6, The Circus, Bath.

Hygiene Prizes

The Royal Sanitary Institute announces that prizes will be offered during 1947 for competitions on (1) practical improvement of appliances or inventions for dwelling houses, and (2) atmospheric pollution or the ventilation of buildings and its effect upon human health. For the first of these essay competitions, the John Edward Worth Prize of £40 is offered; the second competition, which gives a choice of subject this year, will be for the John S. Owens Prize of £25. The general conditions applicable to the competitions can be obtained from the secretary of the Institute, 90, Buckingham Palace Road, London, S.W.1.

British Council Bursaries

British Council bursaries have been awarded to Dr. David Honore, of the surgical department, Liége University, who is studying thoracic surgery and anaesthetics at Brompton Hospital, London, for four months, and to Dr. A. Ennuyer of Radiotherapie Fondation Curie, Paris, who is at the Royal Cancer Hospital, London, studying radiotherapy for six months.

Dental Caries in Sweden

The interesting fact has been established that in Sweden the incidence of dental caries decreased considerably during the war, the decline ranging about 15%. The lowest incidence has been found to occur in the provinces round Lake Mälar, in central Sweden, where the drinking water contains fluorine.

Fellowships in Diabetics

The Diabetic Association is to support and encourage new work on diabetes by creating Lund Research Fellowships in Diabetes up to the value of £750 a year. These fellowships are named after the generous donor. The Diabetic Association has established a subcommittee of medical and scientific experts to allocate the funds in the most promising direction.

Medical Superintendents' Society

The annual general meeting of the Medical Superintendents' Society was held at Birmingham on June 13, when Dr. D. Campbell Suttie was installed as president. The annual dinner of the society was held the same evening, with Sir William Scott Douglas, Permanent Secretary to the Ministry of Health, as the principal guest.

The Friends in China

Mobile teams of the Friends Service Unit are carrying out a successful campaign against kala-azar in Honan, China. A preliminary report on the treatment of about 3,000 patients with intravenous "neostam" is hopeful that the disease will shortly be brought under control.

Film on V.D.

The United States Public Health Service has produced a film (running time 20 minutes) on venereal disease, suitable for showing in clubs and schools, entitled "A Message to Women." 16-mm. prints in colour (price $75) may be obtained from Precision Film Laboratories, 21 West 46th Street, New York City.

War Service

The President of the Czechoslovak Republic has conferred the decoration of the Order of the White Lion, Fourth Class, upon Dr. David Robert Rigg, in recognition of services during the war.

COMING EVENTS

Cavendish Lecture

Mr. H. S. Souttar will deliver the Cavendish Lecture on "Physics in the Life of a Surgeon" before the West London Medico-Chirurgical Society at Kensington Town Hall on Tuesday, July 1, at 8.30 p.m.

The N.A.P.T.

The National Association for the Prevention of Tuberculosis has arranged for a conference on tuberculosis in all its aspects to be held in London on July 8–10, at the Central Hall, Westminster, S.W.1. The Duchess of Kent will open the conference. Mr. Bevan will speak at the first day's meeting on the N.H.S. Act and its effect on tuberculosis control and treatment. Sessions will include discussions on sanatorium design, rehabilitation, and the psychology of tuberculosis. Problems arising in the British Commonwealth will receive particular attention, and representatives from all Dominions and Colonies have been invited. Further particulars may be obtained from the N.A.P.T., Tavistock House North, Tavistock Square, London, W.C.1.

Microbiology

The Fourth International Congress for Microbiology will be held in Copenhagen on July 20–26, 1947, under the auspices of the International Association of Microbiologists, and will be composed of the following nine sections: General Microbiology, Medical and Veterinary Bacteriology, Virus and Viral Diseases, Serology and Immunology, Variation and Mutation in Micro-organisms, Plant Pathology and Mycology, Water and Soil Microbiology, Industrial Microbiology (Dairy and Food Microbiology), and Industrial Microbiology (Alcoholic and other Fermentations). Registration fee will be 30 Danish kroner, which will not include the cost of a banquet ticket or a Report of the Proceedings of the Congress. Congress Office: Kommunehospitalet, Copenhagen; telegraphic address: Microbiolog, Copenhagen.

Cancer Research Congress

The fourth International Cancer Research Congress will be held at St. Louis, Missouri, U.S.A., from Sept. 2 to 7, with headquarters at Jefferson Hotel, 415, North Twelfth Street, St. Louis. The congress is sponsored by the Union Internationale Contre le Cancer and the American Association for Cancer Research, with the assistance of other organizations and individuals interested in promoting cancer research.

Society for Endocrinology

The following officers were elected at the annual general meeting of the Society for Endocrinology on May 29: Chairman of Society, Dr. A. S. Parkes; Secretary, Dr. S. J. Folley; Treasurer, Dr. C. W. Emmens; Editor of the Society's *Proceedings*, Prof. S. Zuckerman; Members of Committee, Dr. P. M. F. Bishop, Dr. C. H. Gray, Mr. P. C. Williams, Prof. F. G. Young.

DIARY OF SOCIETIES AND LECTURES

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.—Thursday, July 3, 6.15 p.m. Ophthalmology Lecture by Prof. Arnold Sorsby: Measurement of the Living Eye. Friday, July 4, 6.15 p.m., Bernhard Baron Lecture by Prof. John Beattie: Physiology of the Post-operative Period.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS, 58, Queen Anne Street, W.—Friday, July 4, 3 p.m. William Meredith Fletcher Shaw Memorial Lecture by Prof. F. J. Browne: Hypertension in Pregnancy; 5 p.m., Biennial Scholarship (Sterility) Lecture by Mr. J. R. Stallworthy: Fact and Fantasy in the Study of Female Sterility.

ROYAL SOCIETY OF MEDICINE

Annual Meeting of the Society.—Tuesday, July 1, 1.30 p.m.

APPOINTMENTS

The National Society for the Prevention of Blindness, New York, announces the appointment of Dr. Franklin M. Foote, assistant professor of public health and preventive medicine at Cornell University Medical College, as executive director in succession to Mrs. Eleanor Brown Merrill, who has retired.

Mr. R. Victor Howell has been appointed general secretary of the Empire Rheumatism Council, in succession to Sir Frank Fox, O.B.E., who has retired. Mr. Howell has also assumed office as secretary to the Heberden Society.

Dr. P. S. Bell has been appointed an Official Member of the Legislative Council of the Nyasaland Protectorate.

Prof. R. C. Garry has been appointed Regius Professor of Physiology at Glasgow University to succeed Prof. E. P. Cathcart, who is retiring.

Prof. Garry won the Brunton Memorial Prize in 1922 and was later appointed lecturer in experimental physiology at Glasgow University. In 1933 he was appointed Head of the Physiology Department of the Rowett Research Institute at Aberdeen and lecturer on the physiology of nutrition at Aberdeen University. Since 1935 he has occupied the Chair of Physiology at St. Andrew's University. Prof. Garry is well known for his researches on dietetic problems; he was a member of the subcommittee on Nutrition of the Scientific Advisory Committee to the Department of Health for Scotland, and he is the editor of the *British Journal of Nutrition.*

Dr. R. B. Robertson, M.B.E., succeeds Dr. R. Stewart Miller as Medical Director of the Mental Hospital at Asfuriyeh, near Beirut.

Dr. Miller, who took up his appointment in 1934, was previously at the Egyptian Government Mental Hospital at Khanka and was made Commander of the Order of the Nile for his services. Dr. Robertson, who has been working recently at the East Sussex County Mental Hospital, gained a wide knowledge of the Near East during the recent war, when he was at Cairo, and speaks colloquial Arabic

MIDDLESEX COUNTY COUNCIL.—The following appointments are announced at the hospitals indicated in parentheses: *Obstetricians,* Muriel Rose, M.D. (Redhill County Hospital, Edgware); A. W. Purdie, M.B., Ch.B., F.R.F.P.S. (North Middlesex County Hospital, Edmonton).

NEWCASTLE-UPON-TYNE: ROYAL VICTORIA INFIRMARY.—The following appointments are announced: *Honorary Surgeon,* J. Brumwell, F.R.C.S. *Assistant Physicians,* H. G. Miller, M.D., and H. A. Dewar, M.D. *Assistant Surgeons,* J. D. Rose, F.R.C.S., and J. D. T. Jones, M.S., F.R.C.S. *Assistant Surgeon to Gynaecological Department,* F. Stabler, M.D., F.R.C.S., F.R.C.O.G. *Associate Surgeons to Gynaecological Department,* W. Hunter, M.D., and S. Way, M.R.C.S., L.R.C.P. *Assistant Surgeons to Throat, Nose, and Ear Department,* J. I. M. Black, M.D., F.R.C.S., and J. L. Reid, M.B., B.Ch. *Assistant Surgeon to Ophthalmic Department,* L. H. Lake, M.B., B.S. *Associate Surgeon to Ophthalmic Department,* Margaret Ranken, M.B., B.S. *Associate Physicians to Children's Department,* Elsie Wright, M.D., G. Davison, M.D., and F. J. W. Miller, M.B., B.S. *Clinical Bacteriologist,* C. A. Green, M.D. *Head of Department of Anaesthetics,* E. A. Pask, M.B., Ch.B. *Assistant Radiologist,* B. D. Houston, M.B., B.S.

BIRTHS, MARRIAGES, AND DEATHS

The charge for an insertion under this head is 10s. 6d. *for* 18 *words or less. Extra words* 3s. 6d. *for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.*

BIRTHS

ANNEAR.—On May 29, 1947, at Cardiff, to Dr. Doreen Annear (*née* Kind), wife of Dr. Marshall Annear, a sister for John—Rosemary Doreen.

BATES.—On June 18, 1947, at Leicester, to Teddy (*née* Edwards), wife of Dr. A. Priestley Bates, a daughter.

DAVISON.—On June 20, 1947, to Ida, wife of Dr. M. H. Armstrong Davison, of Newcastle-upon-Tyne, a daughter.

FROOME.—On June 10, 1947, to Peggy Barrington (*née* Lister), the wife of Dr. Kenneth Froome, of 5, Town Close Road, Norwich, a daughter.

MARRIAGES

FRASER—THWAITES.—On June 6, 1947, at Inverness, Iain Alexander Fraser, M.B., Ch.B., to Betty A. Thwaites, QA/R.

LAWLESS—BANNERMAN.—On June 11, 1947, in Kensington, Desmond J. Lawless, O.B.E., M.B., B.Ch., B.Sc., D.P.H., to Ailsa Bannerman, M.R.C.P.

DEATHS

BROWN.—On May 8, 1947, at 15, Shirburn Avenue, Mansfield, William Hunter Brown, M.B., Ch.B., D.P.H., aged 56.

LITHERLAND.—On June 16, 1947, at 19, Wimborne Road, Bournemouth, Henry Litherland, L.S.A., the beloved and devoted husband of Doris G. Litherland, M.R.C.S., L.R.C.P., aged 79 years.

Any Questions ?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Rh Incompatibility and Pregnancy

Q.—*Would one be justified in interrupting pregnancy in the case of an Rh-negative woman married to an Rh-positive man, after the usual history of one normal child followed by one stillbirth or neonatal death due to erythroblastosis foetalis?*

A.—It is not justifiable to interrupt a pregnancy in an Rh-negative woman merely because of the possibility of producing another child affected by haemolytic disease. If the husband is heterozygous for Rh, then the wife has an equal chance of a normal unaffected child at each subsequent pregnancy. The Rh genotype of the husband should be ascertained so far as is possible, but the exact genotype cannot always be determined from the study of his blood alone, as more than one genotype gives the same serological reactions. The correct genotype may sometimes be determined by studying, in addition to the husband's blood, that of his parents or of his children, and this may enable one to distinguish, for example, between R_1R_1 (CDe/CDe) when he is homozygous and all subsequent children will be affected, or R_1R' (CDe/Cde) where half of the children would probably be unaffected. If the woman produces children with icterus gravis or congenital anaemia there is a reasonable prospect of saving the child by immediate transfusion, especially modern replacement transfusion; but if the child is hydropic no known treatment is of any avail. The justification of early induction of labour lies in the frequency of foetal death in the last week or so of pregnancy, and is probably the correct procedure if the child is large as delay in parturition is dangerous. In such a case one might be guided by the amount of antibody in the maternal serum and whether it was of the agglutinating or blocking type, the latter being of graver prognosis. Sterilization should not be hastily undertaken, and certainly not until a detailed serological examination of the husband and wife and their family has been carried out. In the present pregnancy all preparations should be made to transfuse the baby promptly with Rh-negative blood in the hope that it may be saved by this means.

Sterilization and the Law

Q.—*An epileptic girl aged 18 has been away at a special school for the last seven years. The parents now wish to have her home, but hesitate because she is lacking in moral sense and has been the victim of a sexual assault. Is sterilization permissible?*

A.—It is impossible to answer this question with authority. It is constantly asked, and the answer is always that the law governing the sterilization of women is obscure. The fact remains that no medical practitioner has ever been sued or prosecuted for performing sterilization of a mentally defective (or indeed of any other) woman, and the risk of legal consequences in this case is therefore slight.

Calciferol for Surgical Tuberculosis

Q.—*Is the treatment of bone and gland tuberculosis by massive doses of vitaminn D_2 of any value? Is there a danger of renal damage or other toxic effects from this treatment, and what measures of control are advisable?*

A.—The value of large doses of calciferol in osseous and glandular tuberculosis is not yet proved, but the results of this treatment have so far been encouraging. Toxicity is seen in 50% of cases, the early signs being depression, nausea, and epigastric discomfort. Renal damage does not appear to be common, but it is unwise to use this treatment on completely recumbent patients. It is also dangerous in the presence of active lung disease. While under treatment with calciferol the patient should be observed closely, preferably in hospital. A watch should be kept for toxic symptoms, and the erythrocyte sedimentation rate and blood calcium levels should be estimated regularly. A rising sedimentation rate or a very high blood calcium are indications for stopping the treatment.

Pulmonary Stenosis

Q.—*Does the dilated pulmonary artery associated with isolated pulmonary stenosis ever show well-marked pulsation?*

A.—In most instances congenital pulmonary stenosis is associated with other congenital cardiac lesions, usually with a patent foramen ovale or a defective ventricular septum, or both. In only 9 out of 110 cases collected by Abbott was pulmonary stenosis an isolated finding. Examples of isolated pulmonary stenosis are too rare for a generalization to be of value, but in the cases seen by the writer there was no pulsation on clinical examination. The radiological findings on this point are inconstant.

Paraldehyde Addiction

Q.—*What are the clinical features of addiction to paraldehyde? What is the prognosis, and is there any treatment likely to be effective? My patient, aged 75, takes 2 to 3 drachms (8 to 12 g.) of paraldehyde at night. She complains of inability to sleep without the drug, drenching sweats, chronic conjunctivitis with photophobia, and nasal catarrh.*

A.—In the rare cases of true addiction to paraldehyde the symptoms may be indistinguishable from those of chronic alcoholism. Even delirium tremens has been reported. The prognosis of true addiction is bad, as it is for all drug addictions. In the case in point it appears that true addiction is not present, but rather a demand for a soporific. In view of the age and the small doses taken, why take steps to check the habit?

Recurrent Facial Herpes

Q.—*What can be done with recurrent facial herpes in the distribution of the right maxillary division of the trigeminal nerve? My patient, a healthy woman of 34, has had an average of one to two mild attacks a year for the past fifteen years.*

A.—It is of first importance to see that there is no local source of infection or irritation, such as paranasal sinusitis, dental or tonsillar sepsis, ear trouble, or an unerupted wisdom tooth. *X*-ray therapy locally (150 *r* at 80 kV at monthly intervals for three treatments) will sometimes stop recurrences. Arsenic by mouth in gradually increasing doses up to the limit of tolerance, over a period of a few weeks, may be employed. Autovaccination with fluid from the vesicles or vaccination with calf lymph has sometimes been successful, but the affection is often resistant to all measures.

Emanotherapy for Rheumatic Disorders

Q.—*Is emanotherapy, or spa treatment by radium emanation, for rheumatism and allied conditions an ethical line of treatment? Has it met with any marked success, and how does it differ from ordinary spa treatment? What are the risks, if any, from drinking radio-active water and of external applications of radio-active ointment or liniments?*

A.—Emanotherapy has been used in the treatment of rheumatism and allied conditions since the early days of our present civilization, albeit unwittingly, since it is only in more recent times that radio-activity has been demonstrated in various spa waters. Originally the treatment consisted of baths or ingestion of spa waters; in the present century this has been extended by the use of inhalations and ointments, either of the naturally occurring radio-active water or of artificially manufactured solutions or ointments containing radium salts or radon. There is a large body of opinion which considers such treatment of value, but this is based for the most part on impressions and not supported by consistent scientific data, either by results or by rationale. Many spa waters do not contain enough radio-activity to give a therapeutic effect, and further investigations are needed to establish the rationale of any effect before one may speak of low-intensity radium therapy in connexion with springs with a low emanation content. The difficulties of such analysis are further complicated if the mental constitution of spa visitors is considered. The risks of the treatment at well-conducted spas are negligible. It would

take 1,500 million litres of the average spa water to reach a dangerous dose. Ointments containing radium salts may be dangerous, but do not now seem to be used. Emanotherapy is not included in the general regimen of treatment of rheumatic subjects in this country; spa treatment is used for the discipline incurred and for its value as a remedial agent in muscular re-education. Fitch, writing on mineral waters of the U.S.A., states that sciatica is curable by radio-active treatment, if it is continued long enough, by baths and springs. Such a statement, reviewed in the light of modern pathology, leads to increased confidence in time, but not in radio-activity, as a cure, and such criticism is applicable to many aspects of this controversial subject.

Persistent Sinus after Resection of Rectum

Q.—*A woman aged 60 had an abdomino-perineal resection of the rectum for carcinoma five months ago. She has a left inguinal colostomy functioning normally. The perineal wound was treated in the usual way, and the patient got up early so that the "dead space" would be minimized by downward pressure. A narrow sinus about 4 inches (10 cm.) long persists in the rectal and anal region. The entrance is kept open with dilators, and the sinus has been irrigated with saline, packed lightly with ribbon gauze, and once or twice curetted, but it shows no sign of healing. There is a slight mucoid discharge. What further treatment do you advise?*

A.—The discharge is not purulent, so it is unlikely that the cause of the persistence of the sinus is infection; the presence of mucus makes one rather suspicious of some communication either with mucous membrane or with a glandular secondary focus. The first thing to do is to demonstrate the whole extent of the track by taking a radiograph after the injection of lipiodol (or other suitable radio-opaque substance) into the sinus; this might show unsuspected extension higher up the pelvis, or even a fistula into the region of the posterior vaginal fornix. The next step would be to open up the sinus sufficiently to explore it with the finger so as to make sure there is no tag of a silk ligature, or even a tiny strip of gauze, at the bottom. If no sufficient cause be found, the local therapeutic effect of *x*-rays might well be tried.

Bringing Up Baby

Q.—*To what degree is it permissible to "thwart" a baby of 3 months? To amplify: Instance 1.—The child has just been fed, is dry, and so far as one can tell free of further troubles. One wishes to put him down but he evidently wants company. Is one justified in putting him in his cot and establishing a rule that when he has been fed and received attention he is to be left? Will this help to eliminate conflict and make him happier—on the assumption that he will soon learn that he won't be picked up at that time of day; or will his happiness be best served by according him his mother's love at his every demand? Instance 2.—He wakes at 4.30 p.m. and is carried round for half an hour to amuse him. Mother then wants to put him down, but he doesn't agree. Is it too early to establish discipline by putting him down even though he cries, or are his mother's protection, warmth, and love to be accorded him at his every command? Perhaps my question amounts to this: Is an infant to be allowed to rule his parents?*

A.—The final sentence of this inquiry—"Is an infant to be allowed to rule his parents?"—suggests that the main problem may lie in this attitude that implies a rival status—"Who shall rule?" This and other phrases describing a baby of 3 months—"he evidently wants company"; "doesn't agree [with his mother]"; "at his every command"—presuppose intellectual processes as yet undeveloped. Intellectually it is of course evident that an infant's reactions are conditioned only by his needs, which he expresses by crying, having no other language. Emotionally it is much more difficult to accept this fact, for the child's unhappiness, violently expressed, seems to his parents like a challenge, though actually it is for their care that he cries. It is surely natural that, since a child begins his foetal life as an extension of his father and mother, after birth he still remains in their feelings as part of themselves—a biological attachment invaluable in evoking love and protection, but disturbing also when the "devilry of infancy" becomes involved in this identification. In this way the moral self-condemnation irrationally aroused in the best of parents may become projected in their child.

In dealing with the baby who demands attention, it may help to regard the behaviour as objectively as any phenomena of disorder, to seek the cause and to treat it. It seems that there is a lack of satisfaction somewhere, and for this reason, although the baby's physical needs are well cared for, it is possible that he is conscious of over-anxiety in handling or of lack of maternal warmth. Insecurity in those who look after him is quickly sensed by a baby, with consequent anxiety and distress. In this case his parents, who have taken the trouble to consult the *Journal* on his behalf, may by this token of good intent towards their child feel the confidence in themselves that they deserve.

Ingrowing Eyelash

Q.—*A male aged 40 has for two years had an ingrowing eyelash on the left lower lid which impinges on the eyeball and has to be plucked out. He does not wear glasses. Is there any way of preventing this eyelash from growing?*

A.—A single lash is best treated by electrolysis. This is likely to produce permanent epilation. A fine electrolysis needle attached to the negative pole is entered towards the root of the lash. The current used is 1 to 3 mA for twenty to thirty seconds. A bubble of white foam forms at the point of electrolysis. The procedure is best carried out after preliminary infiltration analgesia by 1 ml. of 4% "novacain"; it is, however, possible to dispense with this.

NOTES AND COMMENTS

Ejaculatio Praecox.—CONSULTANT writes: One of your recent questions (May 31, p. 794) was "What advice should be given to a healthy man, newly married, who ejaculates prematurely?" I have dealt with many of these cases and I find that in the majority of them some such advice as the following is of great assistance. What I say to the patient is something like this: "Premature ejaculation is of no consequence; you must train yourself for intercourse just as you would for any other activity. Have one intercourse early in the evening and do not worry about the premature ejaculation. Then take your wife out to dinner, the theatre, or a film and have a pleasant evening together. On returning home, you will find that a second attempt will be more successful. A third later the same night may be completely successful. This technique should be repeated twice a week, or perhaps even three times."

Birthday Honours.—The names of Edwin Arthur Blok, L.R.C.P.&S.Ed., lately Assistant Director of Medical Services, Ceylon, and Carol Jameson, F.R.C.S., F.A.C.S., Vice-Principal, Missionary Medical College for Women, Vellore, North Arcot District, Madras, were omitted from the Birthday Honours published in the *Journal* of June 21 (p. 895). Dr. Blok was appointed C.B.E. (Civil Division) and Miss Jameson was awarded the Kaisar-i-Hind Gold Medal for public services in India.

Correction.—In the issue of June 14 (p. 859) the O.B.E. was incorrectly attributed to Prof. D. Murray Lyon.

INCOME TAX

Colonial Pension

H. asks whether a pension given for colonial medical service is regarded as earned or unearned income.

*** Under Sec. 14 (3) of the Income Tax Act, 1918, "earned income" is defined as including "any income arising in respect of . . . any pension . . . given in respect of the past services of the individual . . . in any office or employment of profit, . . ."

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